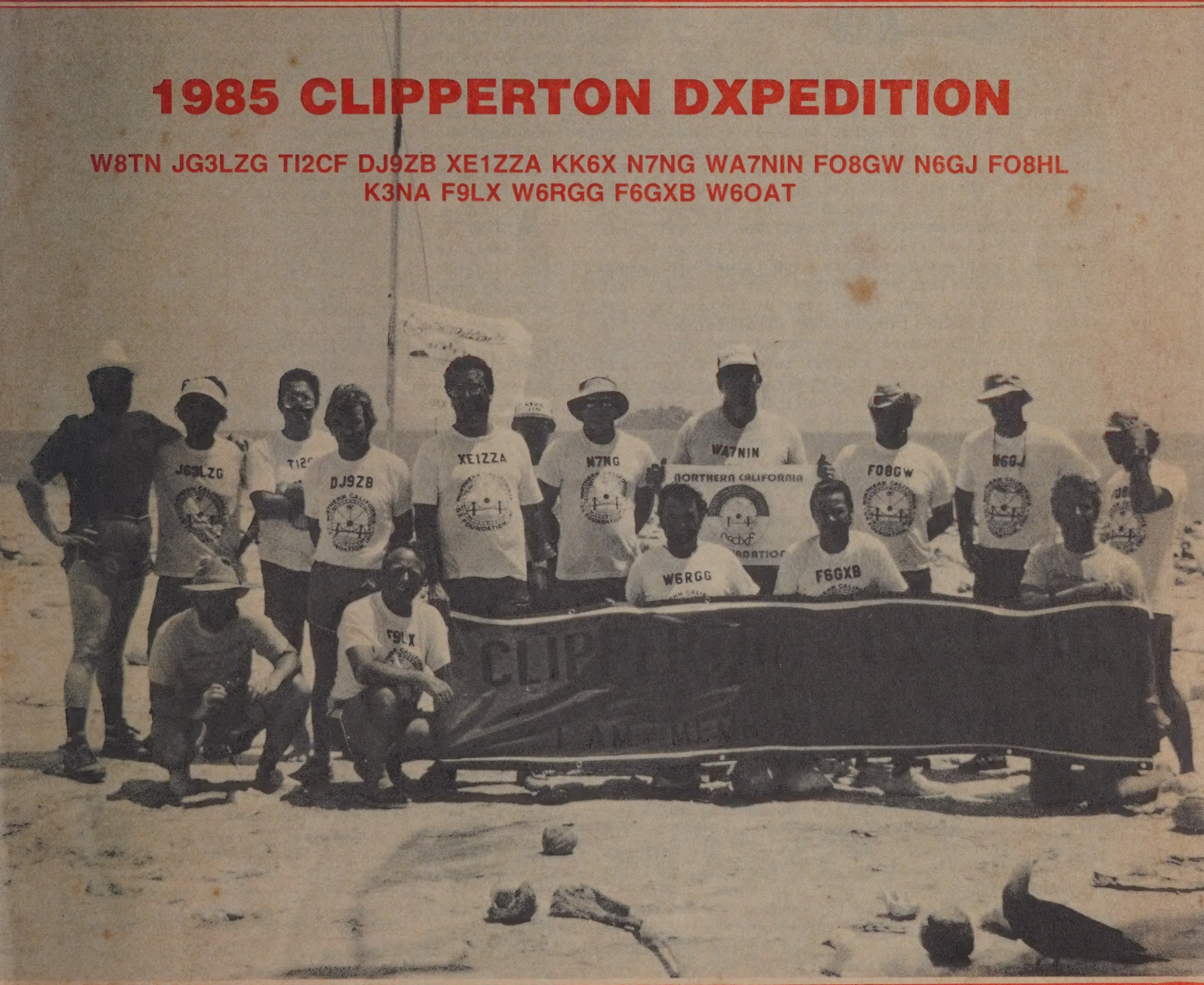
INTN'L MONTHLY MAGAZINE - BY AND FOR ACTIVE RADIOAMATEURS

RADIOSPORTING

MAY/JUNE 1985 No. 7 $2.00

1985 CLIPPERTON DXPEDITION

W8TN JG3LZG TI2CF DJ9ZB XE1ZZA KK6X N7NG WA7NIN FO8GW N6GJ FO8HL
K3NA F9LX W6RGG F6GXB W6OAT



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VE3BMV RADIOTORIAL

April, besides having the fool's day, has a significant event in amateur radio - the Dayton Hamvention. Over the past few years Dayton has became the Mecca for radio amateurs from all over the world. Who never made it to the Hamvention, is missing a lot.

What's the big deal? In one place you can see the latest wares announced by the manufacturers. You can talk and deal with dealers to get that super deal on your dream radio. The flea market is out of this world - packed with things that you never thought existed. Things that you could not find anywhere, you might buy at Dayton by the dozen. Excellent forums and presentations from contest and DX topics, all the way to the space shuttle. Most of the special interest groups time their meetings around the Hamvention. But above all it is wall to wall radio people from all over the world. There is a chance to meet those who you fought for in the pile-ups or competed against in the contests, or just plain old friends from the bands. It is so nice to meet old friends in the arena during the day, or in the hospitality suites into the wee hours of the morning. There is the chance to thank that DXpeditioner for the new one he gave you, see the slides and movies from the recent DXpeditions and attach the faces and personalities to those many call signs that are so familiar.

RADIOSPORTING was there too and we were pleased to meet many of you who came and expressed their appreciation for the work we do. Hamvention is a tiring marathon. I usually get about three hours of sleep each night, not mentioning the sore feet; however, I enjoyed every minute of it. We appreciated the comments and were pleased to find out what you would like to see in this magazine. I really didn't have much time to go through the exhibits and the flea market. However, we had a lot of fun at the hospitality suites at Stouffer's till 4 A.M. We talked to many DX and contest warriors and even got some promises of interesting articles for this magazine about their adventures.

Mike, VE3JTQ, went to the Contest and DX forums (the best ever!) and is reporting about them in this issue. Our DXpeditioning columnist Carl, WB4ZNH and his XYL Martha were busy QSLing on the spot. Carl has his first article on the Equatorial Guinea expedition in this issue. Clark, W8TN, graciously supplied the group picture of the Clipperton DX Club you see on our cover and promised to write about the DXpedition for the next issue.

The real DX and contest action was at the hospitality suites in Stouffer's hotel after about 8 P.M. Like nightly creatures the DX and contest types emerged and crowded hospitality suites sponsored by the North Jersey DX Assn., Yankee Clipper Contest Club, Kansas City DX Club, Mad River Radio Club, Southeastern DX Club, South Ohio DX Club and many others. If there was a trophy for the best hospitality suite, it would probably go to the Kansas City DX Club. An excellent program of video tapes including the "Pileupbusters" even made the most serious type, burst with laughter. Pileup tape contest with prizes, plenty of liquid vitamins and many familiar call signs were the highlights of the packed suites. The KCDXC group sure are a fine bunch of guys who have more fun when sunspots go down and there is not much to work in zero land.

It looks like it is time to consolidate this variety of hospitality suites into one large, where we would have more room and be all together and not wandering up and down the elevators looking for that special friend we know is here, but can't "catch" him!

We spoke to some advertisers and straightened out some misconceptions about RADIOSPORTING. We are looking forward to more ads.

We have received some letters from people telling us that they are receiving the magazine late, about the third week of the month. The "problem" is with our way of labeling the issue for the month it is published for. I.e. the April issue was finished on the last day of March. Then it is printed and it goes into the mail before the 10th of April. From that point on it is in the hands of the mail service and it arrives typically during the third week of April. Those who glance at the cover, think that magazine is a month late. All other magazines arrive in the last week before the month of the issue. We were an oddball and we realized that. So to correct the situation, we are calling this issue May/June in order to get in sync with everybody else. Nobody will lose an issue, for it is just a cosmetic change. I hope this clears some of problems.

This issue will be a bit late due to the hectic schedule and the Dayton trip, plus the changes in printing equipment at our printer. He has had problems with two new machines and is finally getting a different one and thus eliminating some of the problems. Thank you for your understanding and please bare with us. We are working hard and you will see some improvements in the make-up of the magazine very soon.

We would like to extend an invitation to various clubs to use our magazine to publish items presently published in your club newsletters. We offer the advantage of being a monthly magazine, we can save you time and effort with production and printing. If you have anything that you can share with a wider audience, please send it to us, and we will be glad to publish it. If you have a computer and a word processing program, you can send us a diskette with your material. We are currently using an Apple II+, Epson QX-10 and IBM PC types with the most popular word processing programs (WordStar is preferred.)

We are also looking for more column leaders, VHF/UHF, Satellite, Packet Radio, Computers, RTTY, QRP, ET, SSTV, ATV, SWL and anything that relates to operating radio. Nothing is too unimportant if it involves radio. Please come forward and let us all share your experiences.

We have finally mailed the IRSA membership certificates and badges. We thank you for your support and are looking forward to our further cooperation in promotion of quality in amateur radio!

73, Yuri

RADIOSPORTING

INTERNATIONAL MONTHLY MAGAZINE -
BY AND FOR ACTIVE RADIOAMATEURS

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PUBLISHED BY: TRETINA PRINTING INC.
Hwy. 36, Airport Plaza
Hazlet, N.J. 07730 U.S.A.

Bulk Rate U.S. Postage PAID,
Permit No.101 Hazlet, N.J.

PRINTED IN USA

Subscription rates:	US 1 Year	US$ 16.00
	2 Years	US$ 30.00
	Canada 1 Year	CDN$ 22.00
	2 Yrs.	CDN$ 40.00
	Overseas 1 Year	US$ 19.00
	2 Years	US$ 36.00
Single issue and back issues		US$ 2.00

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INTERNATIONAL RADIOSPORT ASSN.

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Purpose and objectives:

1. To promote international friendship and goodwill through sportsmanship, radio contesting and DXing.

2. To improve the quality of amateur radio operators and operating through education and experience, by voicing the opinions of radio amateurs that are experienced and have contributed to the hobby.

3. To promote amateur radio contesting and other operating-related activities as a sport, and to provide the publicity and recognition that it deserves in the public media.

4. To publish timely articles in the monthly magazine "RADIOSPORTING" on various subjects of interest to Contesters, DXers, SWL, VHF, UHF and microwave enthusiasts, on RTTY, SSTV, computers in communications, fox hunting and anything of interest to the active ham striving for self-improvement. To feature technical articles on equipment design and modifications, antenna construction, radio-wave propagation, and commercial equipment reviews by qualified people.

5. To organize, as an annual event, the "International Contest Symposium," which runs parallel (evenings) with the Dayton Hamvention; to feature timely topics with the participation of some of the world's leading amateurs at the Syposium.

6. To hold an annual Awards Dinner with an entertainment program, where awards for various achievements will be presented.

7. To maintain and publish all time record tables for significant contests.

8. To sponsor and run an annual World Contest Championship, based on results of a number of major contests, with the annual "Contester of the Year" awards in various categories.

9. To administer the "Contest Hall of Fame" and vote on awarding membership to those who have significantly contributed to the sport of contesting.

10. To coordinate and assist in the scheduling of international contests.

11. To hold regular weekly meetings on air on 20 and 80 m. (14.200, 3.830)

12. To provide an automatic, computer controlled bulletin station that transmits the latest DX and Contest news on CW and RTTY.(14.098)

13. All in all, the IRSA is dedicated to the pursuit of excellence and quality in amateur radio by promoting, publicizing and leading the way.

14. Attractive numbered membership certificates and badges are issued to members.

15. IRSA is run by contesters who are selected for their accomplishments and it is independent of any national or commercial organizations.

16. IRSA will assist and sponsor Contests/DXpeditions, Trophies and other radio sporting and publicity events.

17. IRSA is a non profit organization, with all proceeds to be used to finance events and awards sponsored by IRSA and to cover expenses incured by Association.

18. IRSA members can display the IRSA logo on their QSL cards and correspondence; members agree to obey the Contester's Code of Ethics and to promote it.

The initial fee to join the IRSA is US $12; it includes the cost of a certificate and a badge. The yearly membership dues are US $5. (Or 24 and 10 IRCs resp.)

Honorary Life Membership will be awarded to those who significantly contribute to IRSA and the sport of contesting.

Members are entitled to be elected and to elect officers of IRSA. They will also enjoy many services and privileges offered exclusively to members.

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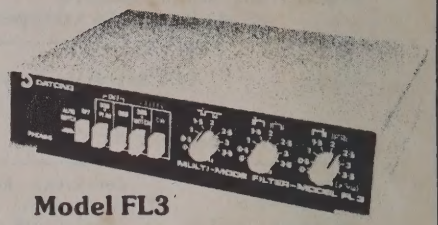

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If you would like to participate in IRSA activities or contribute material and articles to RADIOSPORTING, please let us know.

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DX NEWS

The DX news from around the world as exchanged on the IRSA net and from other sources: Frankford Radio Club, Kansas City DX Club Newsletter, South California DX Bulletin, The DX Bulletin, Westlink Report, Worldradio, DJ9ZB, SM0AGD, VE3BMV and W8TN.
The IRSA net operates on Sundays around 14.200 MHz, starting at 2000 Z and 3.830 (Mondays at 0200 Z).

3B7, St. Brandon

SM0AGD and group did not receive landing permission for this expedition and spent few days operating from 3B8.

5X5UU, KC7UU/?? African operation

Chuck, KC7UU says he has plans for DX operation in the next two years from 5X, 5U, 5A, C9, TJ and others. He expects another five or six years in his present job and will operate from DX locations as time allows. He is one of the world's best CW operators.

Chuck was also a banquet speaker at Fresno DX Convention. He has a house on a hilltop near Entebee and expects to be there soon for about 8 months and to operate as 5X5UU.

BY1PK, China

DK7PE should be in Beijing starting June 9 for about a week and hopes to operate BY1PK radio club station.

CEØAA, San Felix

An official statement from the Radio Club of Chile says "most of confirmation cards for CEØAA have been delivered to radio amateurs who sent their cards to PO Box 700, Santiago, with an SASE." The club is now working to answer cards with no accompanying SASE, via bureaus, plus investigating contacts which could not be found in the log.

The club says "All information concerning the San Felix expedition shall be issued, in writing, exclusively by the Radio Club de Chile. Any other source of information by any other means or individuals is unauthorized and of no responsibility for Radio Club de Chile, which shall not accept intermediaries of any kind."

"Finally (the letter continues), Radio Club de Chile wishes to express its deep gratitude to all participants in the CEOAA operation, for their support and encouragement."

If you did not receive your CEØAA QSL card yet, write a letter explaining all facts with a request for clarification of status and mail to Radio Club of Chile, Box 700, Santiago, Chile. No money or IRCs necessary with this second request.

FOOXX, Clipperton

over the six day period 16 operators of FOOXX made 30,958 contacts surpassing the previous Clipperton expedition's record. Included were 8500 SSB contacts, 96 OSCAR and 81 RTTY. Apparently propagation to Europe was not too good and the operators did not fully take an advantage of the openings.

W8TN and DJ9ZB promissed us an article on the operation.

P29JS, Jim Smith

Heard Island DX Association newsletter has been received by members of the association. Jim Smith, P29JS, has been joined on Papua New Guinea by his wife Kirsti, who is signing P29KJ, and they got the newsletter in the mail last week. The association has no immediate plans for expeditions, in part because the demand for DXCC countries in the Pacific and Antarctic regions has been mostly satisfied the past few years. One exception is South Sandwich, which is a difficult proposition.

SV, Mt. Athos

Apparently there is a very slim chance of any further DXpeditions from Mt. Athos monastery. An official letter was written sying that no more expeditions will be allowed. Frank, DL7FT id trying to obtain permission.

VP8, South Georgia and South Sandwich

The RSGB has announced plans for operations from South Georgia and South Sandwich. They propose to have several young amateur radio operators join "Operation Raleigh," which will visit those islands between November, 1985 and January, 1986. Qualified British amateurs, with HF operating experience and under age 25, are now being screened for the voyage and will be chosen soon. The RSGB hopes that this venture will be the first of many.

XF4MDX, Revilla Gigedo

operation by the Mexican group appeared as planned, but run into the geomagnetic storm and bad propagation. The Clipperton group had a permission to land on another island in the group, which was practically inaccessible.

XU1SS, Kampuchea

is back on the air again after their original QTH was reported overrun by the Vietnamese. Check the low end of 40 CW around 1300Z and 14.227 (W7PHO Net) at 0000Z. QSL via JA1HQG.

XZ, Burma

although other publications are mentioning that a Czechoslovakian says he will operate form Rangoon soon, the situation in Burma regarding licensing has not changed. The government does not recognize amateur radio and does not issue licenses. Thus, specific callsigns would not be possible. Operations from Burma for the past few years have been "/XZ" with the government looking the other way. The Newington DXCC desk recognizes none of these operations.

ZA, ALBANIA

will certainly top TDXB annual Survey list again this year. Ecuadorian radio station HCJB recently aired a summary of the Albania amateur radio situation, most of the information coming from an October, 1984, article in the "Australian DX News." According to their report, only three operations have occurred from Albania since WW2, both in the early 1970's.

OH2BH/ZA in July, 1970, aimed for ten days, but he was forced to shut down after only eight hours and 860 contacts. The official reason given was that he was causing interference to the hotel's internal communications system. Martti did have the paperwork necessary for DXCC, however.

In September, 1970, an operation took place which has been shrouded in mystery ever since. DL7FT and some friends got on the air as ZA2RPS, from the same hotel as OH2BH, and they worked about 1000 stations in four days.

In July, 1971, according to the DX News Sheet, OH2BH entered Albania once again, but a misunderstanding about declarations of radio equipment brought about diplomatic problems, and Martti and his friends went home without ever getting on the air.

Since then, according to the HCJB broadcast, some 25 amateurs from various countries, mostly Europeans, have been turned down for ZA operating permission. The authorities are quoted as saying that "as of January, 1975, amateur radio licenses are only granted to residents of Albania." Since private possession of transmitters is banned, the matter seems closed.

As reported in TDXB over the last several years, OH2BH and friends have continued their efforts, by donating transceivers to schools in the Tirana area and personally training prospective Albanian operators. It had been hoped that the opening of amateur radio in China would spur the Albanians to speed up their own amateur radio program but so far that has not happened.

(de VE3BMV: There were other operations prior to OH2BH; HA5AM(?)/ZA and OK7HZ with OK7ZH also operated for short period of time from Tirana.)

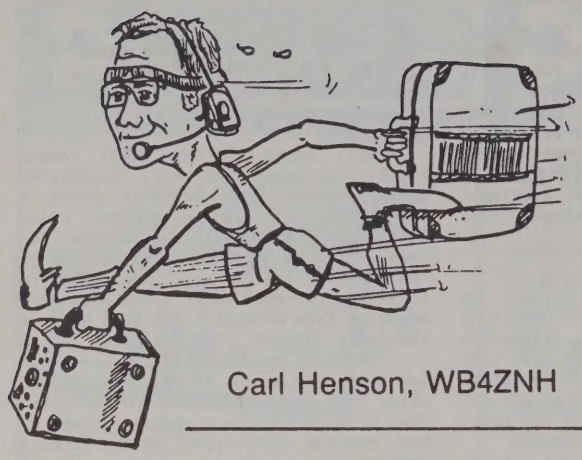
ZC4, UK Sovereign Base Areas

if you have managed to work Martin, ZC4MR, his QSL manager, G4SDJ, is good only in the 1985 Callbook. In case you haven't sprung for one, the address is: Rodney Freeman, 2 Merriefield Close, Broadstone, Dorset, BH18 8DG, England. Following are the calls collected thus far, known to be good going back to 1960: ZC4AK, ZC4AKR, ZC4ASG, ZC4AVU, ZC4BI, ZC4BP, ZC4CB, ZC4CI, ZC4CN, ZC4CS, ZC4CT, ZC4CZ, ZC4DA, ZC4EPI, ZC4ES, ZC4ESB, ZC4ESP, ZC4GB, ZC4HC, ZC4HS, ZC4IK, ZC4IO, ZC4JU, ZC4LC, ZC4MR, ZC4PC, ZC4RAF, ZC4RB, ZC4RM, ZC4SC, ZC4SJ, ZC4SS, ZC4TK, ZC4TX and ZC4WW. The ARRL will start crediting the QSL cards after the June 1, 1985.

ZL1AMO, Ron Wright and W6QD, Herb Becker

were elected to CQ DX Hall of Fame. Congratulation to both for achieving this prestigious award.

DXpeditioning



Carl Henson, WB4ZNH

3C1BC & 3C1YL

EQUATORIAL GUINEA

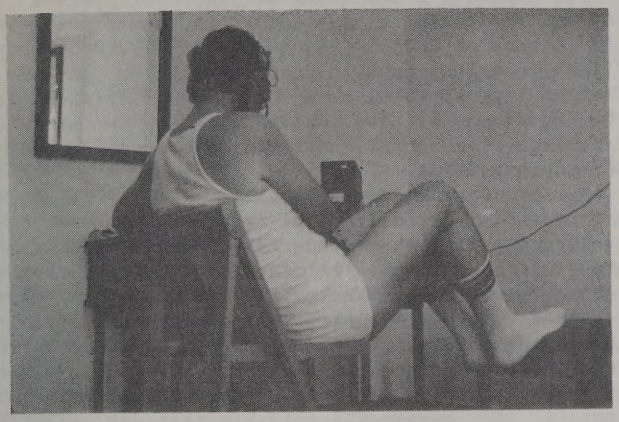
Low lying clouds, dust from a Sahara wind storm, and the smoke from numerous cook fires blend together to hide the lush jungle from view as our big Iberia DC-10 turned toward the short single runway at Malabo. The shiny jumbo jet seemed to pirouette on its left wing tip, a necessary maneuver in order to remain a safe distance from the volcanic mountain whose peak is only a few kilometers south of this small village. In my mind's eye, I could visualize the flight crew's attention to every minute detail, especially the aircraft's speed. Speed is so critical when landing at an airport such as Malabo's. The runway length is the minimum for which the DC-10 is certified. Too fast of an approach speed could cause the plane to float for too long and could result in the most common of all aircraft accidents, running off the far end. Too slow of an approach speed could result in a hard landing or landing short of the runway. The skillful Iberia Captain was obviously in excellent concert with his machine. The wheels whispered as they made contact with the tarmac. Step one was complete, I turned to Martha and said, "Welcome to Equatorial Guinea."

Staggering down the stairs onto the ramp with a TS-830S in each hand and my tool kit disguised as a toiletry kit dangling painfully from my index finger, I was keenly aware of the odd contrast between the technology level of the western world represented by the DC-10 and the obvious lack of technology in Equatorial Guinea as evidenced by the human powered carts used to unload the plane. The contrast was no less than the contrast of temperature and humidity which caused the big jet to perspire so freely on the airport apron. Our hands were all red and white striped from the handles of our carry-on bags and radios.

Once inside the terminal building, we quickly started looking over the other European type people. To our surprise, there were several Americans. A tall pretty woman with two teenage boys responded to my comment about the slow arrival of the luggage. She introduced herself as the wife of the U.S. Ambassador. Great! While realizing that embassies have far more important things to do, I had sent a message to the U.S. Embassy asking about accommodations in the country. I had never received a reply. When the Ambassador arrived to rescue his family from the suffocating terminal building, I introduced myself and repeated the inquiry. He responded, "I am surprised you came. I sent you a message that there are NO hotel rooms and NO food." After a very brief chat, the Ambassador told me that the embassy would attempt to help us but we could not possibly stay for three weeks. We should plan to leave the following Tuesday on the next plane.

Martha and I sat on top of the radios since there were no chairs, and talked over our plight. There was disaster in our minds and our voices as we tried desperately to remain optimistic for the other's benefit. In almost a flip manner, which by being so unlike Martha, gave away her concern, Martha quipped, "Oh, this is a most unfortuitous beginning." No joke. By now over an hour had passed and our luggage was still no where to be seen. I paced the small crowded room, my mind racing. Is the Baha'i doctor and his wife, who we helped get off of Annobon three years ago still here, and could they help us find a place to stay? Was it feasible to try to find a local family that might share their home for a price? Would we have to sleep at the airport on that incredibly dirty floor? Suddenly I was torn from my desperate thoughts by yet another American voice. A man squatting on the floor next to his wife who was sitting on some carry-on luggage made some idle statement about it taking so long to unload the plane. In the next few minutes, we introduced ourselves and I explained our plight, wanting to

3C1BC trying to sneak through the customs:
"Just jogging with a hand-held radio...'



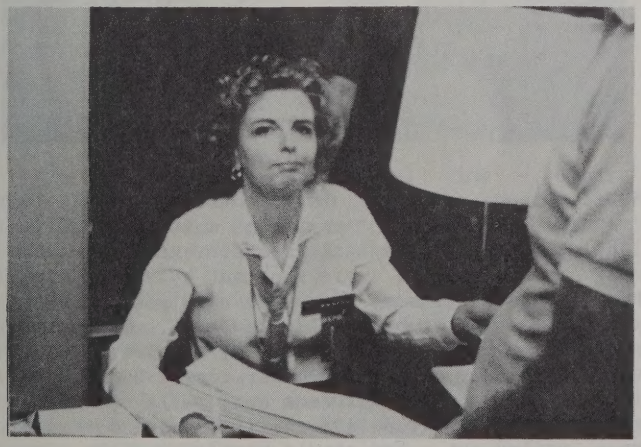
3C1BC coping with the heat of the pileups.

give everyone a chance to offer a solution. Immediately, Hal explained that the company he worked for kept an apartment rented for their people when they came to town. It was empty and they were not expecting anyone for some time! All I would have to do would be to reimburse the company the amount of money it cost them to rent the apartment! Blind luck. Not only did we have a place to stay now, but Hal waited for us to clear customs, not a quick and easy thing to do, then drove us to the hotel and helped get the almost 400 lbs of luggage, antennas, and radios up to the room. This proved to be no easy task. The elevator had been inoperative for so many years that the doors had been sealed up. There are 85 steps from the lobby to our room. Not only did we have a room, but we had a two-room apartment with a refrigerator, a one burner kerosene stove (made in China) and a HOT WATER HEATER! There were ample beds, a sofabed in the living room and two single beds in the bedroom, several chairs, a card table, and two narrow two-drawer tables which made a nice large table when put together. The hotel turned out to be the tallest structure in town, with the possible exception of the spires on the Catholic Church. That is not all. Our apartment was on the 6th and uppermost floor! The generator, which saw service at TT8BC and TT8AC, even though it was largely responsible for the excess baggage charges of almost $700, would not be needed. The city power, with the exception of a few minor failures, remained on 24 hours a day and was quite stable. The hotel was equipped with generators in the event there was a long power outage. When the entourage of helpers finally finished and left, I turned to Martha and said mockingly, "Oh, this is a most fortuitous beginning!"

Three weeks and more than 10,000 QSOs later, we began the long journey home. Leaving behind the new friends was kind of sad, but there truly is NO place like home.

Martha and I will be showing the slides and telling the complete story of this 1985 DXpedition at DXPO Atlanta, the last weekend of September. For information, write to: Southeastern DX Club, 720 Starlight Lane N.E., Atlanta, Georgia 30342.

(WB4ZNH)



This is Martha Henson, 3C1YL QSLing the new country at Dayton Hamvention DX forum.

Busy QSLing at the DX forum and in the DX hospitality suites. All contacts were entered into the computer, sorted out by calls in alphabetical order and labels were printed out. You told them your call sign and within the seconds appropriate computer label was found and applied to the QSL cards.

Rare DX and DXers meet at the RADIOSPORTING booth in Dayton. Walter Skudlarek, DJ6QT (l. to r.) Steve Tobe, VE3XO, Bill Fedder, WA2MNM and Ken Miller, K6IR. Walter was telling about his latest adventures in Africa.

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AFRICAN NOTES

Sam Ford, ZS6BRZ

Last October I was operating the CQ World Wide DX Contest from Swaziland under the call 3D6DX. We were in the multi-operator, single transmitter category and we had made nearly 3000 contacts. According to our score-sheets we ought to bring home 2.8M points. The "we" referred to are fellow ZS operator Jim, ZS6AOO, Graham Gillets, 3D6BQ and Jon, 3D6BX (ex LA7IL working with the Red Cross Mission in 3D6). We had expected to be quite potent on 40 m with a 2-el 40 m yagi but due to delays at the border post (we had to sleep in the car outside the border gate when we arrived two minutes after closing time) we did not have enough time to get everything erected. The spot chosen was on a hill at Pigg's Peak, 75 km from the capital Mbabane. The equipment used was the Kenwood TS-430S, TL-922 Linear and a TH5-DX antenna. Other antennas used were Inverted Vee's on 40 and 80 m. At midnight local time (22.00Z) we strung out a 1/4-wave sloper for 160 m with the braiding of the coax attached to the base of the mobile tower which we had taken all the way from Johannesburg on the back of a trailer.

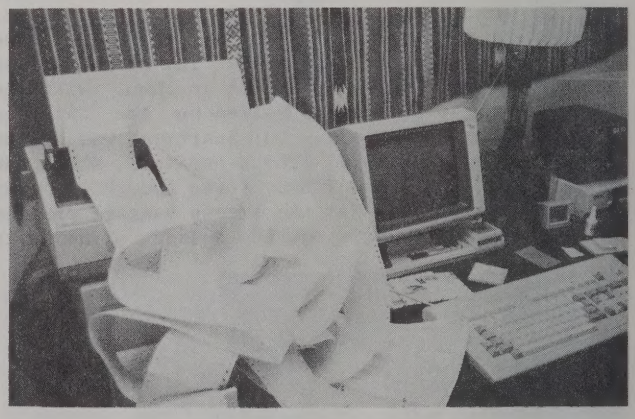
On the first day, band conditions were quite good on 10, 15 and 20 m. On 40 and 80 m we experienced a bit of noise but were able to maintain reasonable rates. The following day, however, 15 m became very poor toward 10.00 to 11.00Z.

This is not the first time that I have come across this type of propagation condition. In October 1983 I came across the same type of propagation while operating as 7P8DB before heavy winds bent the mast (1.5 mm wall TV tubing) supporting a TH3-MK3. In previous years I noticed that where no propagation exists a contest normally creates its own operating conditions - when the contest is over the bands close and with it the attempts to contact DX stations to discuss the contest are usually futile. The stations can be heard but with considerably reduced signal strength - 3x1 sometimes!

By the time you read this, the WPX Contest will have been over. I normally do not publicize where I will be operating from as those facts are not clear to me until about three weeks before the Contest. This is essentially due to my work commitments and I can not plan too far ahead. This time I intended to operate from ZS3 or as portable ZS3 and had in fact applied for the license. However, the QTH available to me is in Tsumeb (Horst Lutz, ZS3HL kindly offered me the use of his station - you may have worked him last October), over 2000 km away and transport was the major problem. I could drive up there but that would take me about 20 hours of driving leaving me too exhausted to work the Contest. My leave extends only from Friday, March 29 to Monday, April 1. I therefore had to abandon the idea and only today advised Horst to that effect. The next avenue open to me is to try 3D6 again and at the moment I am negotiating to operate from 3D6AS, Robin Seal's QTH with the same call of 3D6DX as I have no intention of dragging a tower and trailer up those mountains again. If this fails, I will have no other alternative but to work under my own call. Perhaps I should plan now again for ZS3 and ensure that transport is available. Flying up with a scheduled airline then taking a connecting flight from Windhoek to Tsumeb cost in the region of R600.00 (approximately $1200 US) but flight bookings have to be made well in advance. That is the sum total news of my own activities. In the meantime, I have just received my certificate for First Place in Africa for Single Band (28 MHz) WPX Contest (SSB).

Further news from Southern Africa is that Botswana is not considering many applications for reciprocal licensing from ZS stations (at this stage I am not aware if other non-ZS's are being considered) due to certain problems that had violated their regulations. From the party concerned (ZS6BUX who has since then returned to Yugoslavia) I gathered that he had been given prior approval to operate on a verbal basis. His A2 contact had apparently told him that it was in order but the confusion arises as to whether it was the license or the fact that he operated an expedition that created the problem. I understand, however, that stations on legitimate business (not DXpeditions!) are still being considered. Lesotho is also tightening up on reciprocal licenses and the problem here appears that several ZS stations based in the Province of the Orange Free State had fraudulently given fictitious addresses where they would be based in Lesotho. Guess we will find all types in all spheres.

Brian Otter, 9J2BO, can be heard on 20 m most Saturday afternoons (1300-1400Z) and early Sunday mornings (0900Z-1100Z). On 80 m (3.798 MHz) Chris, Z21EV can be worked most evenings (2200-2300Z). He had also been experimenting with a 1/4-wave sloper on 160 m (1,834 MHz at about 2300Z). There have been sporadic openings on 20 m and one can sometimes hear the W's and VE's when the band opens for a short while again at 2200-2300Z. 5N9GM was heard to work a good pile-up of North American stations. QSL George at his CBA in Kaduna. (ZS6BRZ)



Subscription problems? This is the culprit! The computer of course, spitting out the mailing labels! Most of the back issues, except for the most recent orders, were sent out by this time. Besides loosing some issues to the post office, sometimes, the computer skips a label. If you are missing any issue by mid June, please let us know, we will gladly send you another copy. Back issues take about a month to process but, will eventually get to you. All the IRSA certificates and badges were mailed out, and should have arrived by now. Thank you for your patience and understanding.
(Subscription Dept.)

1984 CQ WPX CW CONTEST RESULTS

Yuri Blanarovich, VE3BMV

You can tell a good contest by its increasing participation and popularity. Give it a set of good rules and a bit of time, and the people will eventually discover it and get hooked on it. This is the case with WPX CW. Since its start in 1979, this fast and dynamic contest is steadily gaining in popularity. Perhaps its only drawback is the timing. Being that it's run at the end of May, it therefor is not blessed with the best propagation conditions, especially on the lower bands. It would be much better to have it earlier in the spring.

Many contesters consider CW contests to be THE CONTESTS, because they require another skill to be mastered - the Morse code. As far as pleasure and operating techniques, CW offers more fun. You can still hear the CW signals when the SSB is gone. When the band gets crowded, we can fit more CW stations than SSB on the same band. With today's new radios on the market, CW is becoming more pleasant to operate. In the near future, we will see some interesting applications of computers as an operating aid.

Last year a total of 27 all-time continental records were set. This is perhaps due to the steadily increasing number of prefixes (especially in the US), an increase in participation and the fact that the contest is relatively new and didn't go through the full sunspot cycle.

In the Single Operator All Band category the top honors go to UF6CR, followed by two US stations N5AU and KC1F and 9H1EL.

The high monoband categories were taken by OK3LZ on 28 MHz and 4N2CQ on 15 MHz. The 14 MHz band saw a very close battle between KP4BZ and YU4GD with less than a thousand points difference, or about one QSO!

The low band categories were taken by VE3BMV on 7 MHz, 3.5 MHz was taken by the well known EA8RL and 1.8 MHz by LZ2CJ.

The flea power top honors go to NY4D.

The "little giants" - Multi Single category battle was won by the VP2EC group, beating their club mates operating ZF2HF. Both teams are from the North Texas Contest Club. This club also set the new world record in the club category. L8DQ, LZ2KTS and KH6XX were the followers and their respective continental leaders.

The "big giant" - Multi Multi category was won by YZ1EXY, followed by RP3P and KL7RA, with NM5M close behind.

I hope that the propagation conditions in this years' run will be good and we will enjoy this terrific contest again.

The IRSA has some operating aids - summary sheet, prefix check sheet, log sheet with 100 contacts per page and dupe sheets. They simplify the bookkeeping and help operating. Send SAE and $ 1 for your set.

The skilled operator with a modest station can achieve nice results; look for those "neglected" categories like 10 m, QRP or the band that traditionally has a low participation from your country. It takes some analyzing, planning and good operating to win a certificate or maybe even a trophy. Go for it!

Good luck in the 1985 CQ WPX CW contest and don't forget to send in your log! (VE3BMV)

WORLD TOP SCORES

COURTESY OF CQ MAGAZINE

SINGLE OPERATOR

ALL BAND

UF6CR	**3,084,480**	**5Z4MX**	**2,264,342**
N5AU	2,659,590	N8II	2,104,240
KC1F	2,552,261	WØZV	2,085,390
9H1EL	2,550,384	OK1DWA	2,029,188
UP2NK	2,464,944	K3ZJ	2,028,940
K3ZO/HK3	2,450,160	6Y6A	1,997,593
KQ2M	2,388,558	KI6P	1,977,760

SINGLE BAND

28 MHz		21 MHz	
OK3LZ	50,908	4N2CQ	1,300,075
4M7QP	46,134	G4CNY	1,111,800
YO3KWJ	21,402	LU4FDM	1,004,250
UM8MDE	18,980	KW8N	889,296
JH1RNZ	11,234	I2UIY	876,300
UP2BJM	10,656	HG9R	814,968
JO1NZT	7,392	VE3OCU	809,100

14 MHz		7 MHz	
KP4BZ	2,148,108	**VE3BMV**	**1,489,950**
YU4GD	**2,147,148**	**OK1KSO**	**1,110,330**
CX7BY	**1,832,850**	I4IND	1,094,500
YV1TO	1,814,472	IO3JSS	1,062,864
YT3M	1,564,477	YU7AD	1,036,672
UA9YAN	**1,511,146**	YU3EY	1,010,840
NA8V	1,478,456	N6CW	960,300

3.5 MHz		1.8 MHz	
EA8RL	**453,456**	**LZ2CJ**	**89,872**
RB5IM	**383,608**	YU3EF	69,596
LZ1KVV	382,360	**UA9ADY**	**39,996**
YU3MM	245,496	RA9AKM	26,416
YZ4Z	200,984	UA3PFN	26,080
RB5BA	176,040	DL2SAX	23,936
RW3DX	171,072	OK2PLH	23,074

QRPp

NY4D	A	484,575	UP2BIM	14	274,274
4T8CP	A	377,364	RA3DUU	7	157,430
UB5KCW	28	2,074	UB5INO	3.5	95,616
4Z4NUT	21	432,003	UA9MS	1.8	17,340

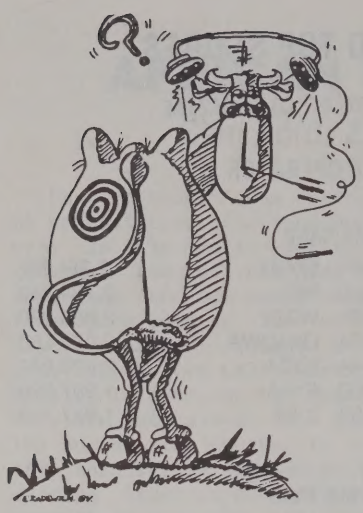
MULTI-OPERATOR SINGLE TRANSMITTER

VP2EC	**7,599,480**	**OK7MM**	**4,096,614**
ZF2HF	6,445,685	EA3VY	3,945,678
L8DQ	**5,952,111**	N4WW	3,769,800
LZ2KTS	**5,444,916**	HG5A	3,762,135
KH6XX	**4,646,859**	HG6N	3,616,509
UZ9AYA	4,380,880	KRØY	3,581,359
KD7P/NH2	4,229,355	RL8PYL	3,400,680

MULTI-OPERATOR MULTI-TRANSMITTER

YZ1EXY	8,282,127	**EA9CE**	**4,383,308**
RP3P	7,978,625	JA3YBF	2,690,800
KL7RA	4,653,283	JA1YXP	1,516,396
NM5M	4,432,883	JA6YDH	1,071,372

HERE'S THE BEEF



C. W. BUG
NØ/FØOL

We all know one or two vegetarians that don't like beef. This is perfectly normal and to be expected. We should not all think alike; the world would be boring. Difference of opinion sparks discussion and identifies problems, when, if left unnoticed, might otherwise grow to unmanageable proportions.

The other day two major beefs about my beef were given to me, one about the ARRL and the other about Vlad, RG8U's letter.

About the ARRL: on the subject of plaques gentleman writes: "..I have to disagree with you when you say there are too many." Well, how many are too many? There are about 107 trophies in the ARRL DX Contest, some of which were not even awarded, because there weren't any participants for the categories. It is commendable that people donate trophies. After all, they sure look a lot better on the wall than certificates. But, what is the value of a trophy if all it takes to win it is one contact? Isn't that devaluation? I have a hard time picturing "trophy time" at the Dayton Hamvention, when there are 100 trophies to be awarded. Yet, there are no trophies given in other ARRL contests like Sweepstakes, 10m contest, and others. Wouldn't that "unused" trophy look better on the Sweepstakes winner's wall than on the ARRL shelf?

Constructive criticism: if there are too few stations in some categories, then perhaps those categories do not deserve a trophy. An alternative might lie in a program to distribute the trophies more evenly across the other ARRL Contests.

On the subject of disqualification he writes: "The tirade about someone who had 60 errors in 718 QSOs amazes me, especially because it is so anti-ARRL. Disqualifications are not taken lightly by those in Newington, and they are not done without careful checking and double-checking..."

The contester in question was disqualified because according to the ARRL log checkers, he had 10.5 percent of errors, when in fact he had only 0.7 percent of errors. If you, or the other station you worked made a mistake in the signal report or number, the ARRL interprets that as 11 mistakes (let's say five letter call sign and six letter exchange), multiplying your errors by a factor of 10! This is not explained anywhere in the rules. The disqualification clause in other contests or competitions is always meant to punish the abusers of the system, not those who make honest mistakes. In the other contests, a penalty is given and the contact is removed, but it is not part of a disqualification! What does the ARRL CAC think about this? Who made the rules? Why isn't this procedure spelled out in the rules? At the present time the rules say:

"Call sign and exchange information must be received and logged by each station for a complete QSO." and "Disqualification: An entry may be disqualified if the overall score is reduced by more than two percent. Score reduction does not include correction of arithmetic errors. Reductions may be made for unconfirmed QSOs or other scoring discrepancies. An entry will be disqualified if more than two percent duplicate QSOs are claimed for credit. For each duplicate or miscopied call sign removed from the log by ARRL, a penalty of three additional QSOs will be deleted. The penalty will not be considered as part of the two-percent disqualification criterion. If a participant is disqualified, that operator will be barred from entering the contest on that mode the following year."

As I see it the rules as they exist today, do not state clearly that one mistake in the received exchange is counted as ten mistakes which, are in turn calculated as a percentage for disqualification. If according to ARRL's rules, a mistake is to be interpreted as reason for disqualification, then it ought to be clearly spelled out in the rules.

When contesters make 1000 contacts in the contest, the way it stands today, they are only allowed a maximum of 20 mistakes. This would include dupes, miscopied calls, errors in the exchange, unconfirmed QSOs or multipliers as well as other scoring discrepancies. Therefore, you can only make, at best, 20 errors out of the 11000 characters you have conceivably received! This translates to less than a 0.2 percent error. I would personally like to meet the champ who, can operate a 48 hour contest, with QRM, static, poor sending and all the other good things we have to put up with in the course of a contest and who can make less than a 0.2 percent error! Common' guys, be realistic!

Constructive criticism: If this is the way the ARRL wants thei contest to be, then it should be clearly spelled out in the rules for all to see. If this is not the case, then the person who disqualified the contester in question should be "rewarded" for this action hence, an apology should be given to the contester, whose honor must be restored and the label of "cheater" removed! Does the CAC know about this? What is their opinion and/or recommendation? Let's hear it!

As far as I know, the other contests would treat this as a mistake, and simply issue a penalty. If it is a first time offense, a warning is issued, the score is adjusted, and the entrant is not disqualified for his/her mistakes. Only for blatant cheating or for ignorance of clearly written and accepted rules (dupes, phony contacts and multipliers) does disqualification occur.

Continued correspondence with ARRL officials has not brought a satisfactory response. The rules have not been changed and the gray area is still there to be used by any and every "person in charge" at will! I am not going to get involved in

a contest like this for sure! Who needs a black mark on his call sign for putting an effort into 48 hours of contest racket? I sure don't!

We would like to see this subject brought forward to the ARRL CAC for an explanation and an official ruling on this "sore" point. I'm sure that many contesters are not aware of this procedure. If they did know about it, they would either be more careful during the contest, have two witnesses standing by, a tape recorder running, or think twice about entering such a event.

About Vlad's beef: The gentleman said that we should not to try to aggravate the commissars, it was bad enough with the Olympics.

Yes, NØ/FØOL is sorry for bringing it up. To put it on the record: there are no Woodpeckers, they do not disrupt communications right across the HF spectrum. I confess! It was only my imagination all along. After the protest from the government of Spratley Island, the Woodpecker stopped. It is not true that many hams behind the "aluminum curtain" lost their licenses or were even arrested. It is not true that the SP hams were put off the air, they simply just got tired of operating. It is not true that the UA hams can not have their addresses published in the Call Book and that Box 88 eats IRCs. It is not true that they can not travel freely in the western direction. The barbed wire is to keep the flies out only. It is not true that they can not get the IRCs here. It is not true that they can not make jokes about their chiefs. Of course they can... they even get a free trip for a good joke all the way to UAO land. Politics here are not mixed with ham radio. But, behind those barbed beverages, politics take up a good portion of their ham magazines.

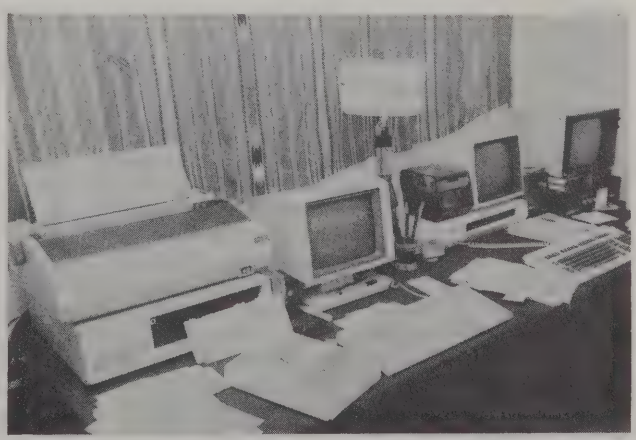
As Ripley would say: "Believe it, ...or not!"

In closing the subject of beefs, we get some beef from people who did not subscribe to RADIOSPORTING. They beef about this, or that, even typos. There is a saying back in old country: "Do not look a gifted horse in the mouth!" or, in other words, "how about subscribing and then writing your opinion or an article?" We'd love having you aboard! 73 Clara, NØ/FØOL

THE BREAKER ...

Woody Woodhouse, K2UU in his radio dungeon sporting Signal One CX11 and home brewed kW. Woody is chasing zones and countries on low bands as well making noise in the contests from home QTH or biggies like N2AA, KN3O, etc. He was a principal "contractor" building the KN3O super-station and he is preparing an article about it for our readers.

Contesters are daring... Les, VE3ABN during the VE3IBM field day operation from the Scarborough Bluffs, Ont., having his table just two feet from the edge of the 200-foot bluff over Lake Ontario. Really good take off! As the gentle breeze from the lake was not enough, the large fan keeps the operator cool! What comfort!



Part of RADIOSPORTING word processing "rig": loaded IBM PC/XT computer with 25 MB hard disk drive and Fujitsu printer, Epson QX-10 and Apple II+ computer

1985 DAYTON HAMVENTION DX FORUM

Mike Spenuk, VE3JTQ

This year, the DX forum was sponsored by the Southwest Ohio DX Association and moderated by Dave Heil, K8MN. An interesting and varied program was presented with slide shows on San Felix, Kermadec, and Clipperton. Also, a very interesting presentation was given by Bob Heil, K9EID, titled "Audio for the DXer."

The forum began with a "round-table" discussion on the DXCC and the DXAC with John Kanode, N4MM and Don Search, W3AZD. No "Earth-shattering" comments were made during the discussion and most of the information mentioned can be found under DX News, and in previous issues.

Now follows the transcription of Bob's talk on audio.

Audio for the DXer

Fletcher and Munsen discovered that all of us have a very big deficiency in top end audio response. I'm not talking about pitch, but rather observing that the entire spectrum "rolls off" and the amount of roll off changes as level is increased or decreased. Get a hold of a book and study the Fletcher-Munsen curve. You will learn to hear a lot better. It creates a better understanding in your mental capability to "listen" instead of just "hear." They found when they look at a level down around 100 Hz, 1000 Hz (to 8000 Hz) at about 100 dB things drop off drastically at the high end. We're not talking about level, we're talking about frequency response. So what you must do is go in to the system and taking into consideration that the person listening to you is going to hear things according to the curve, even though you might be transmitting a more level response. You want your system to have some type of a rise at about 2000 Hz. Why? - Because that's where most of our filters in our radios start dying off and it doesn't matter if it's 1.8 or 2.1 KHz. Anything up in that top region. We want our filters to go out to about 2K and roll off at about 300 Hz. That's the spectrum we're interested in.

If you can make your transmitter look like that, you will be the guy on top. Without that type of audio response, we end up with a horrible, messy audio tone. And you can't see that on a scope. You can't see it on a meter. You can only see it on a spectrum analyzer looking at audio frequencies. I doubt very few of us have one at our stations. An RF spectrum analyzer is a whole different ball game.

Here's where the effect comes to real life. I hear a lot of guys say, "Heil, I don't need any of this crap. I have two Alphas in parallel and stacked KT34's on 205 foot telephone poles. Get out!" Well, if you can measure "band power," not just how much power you're running, but where that power is, then you will see that what I am saying is important.

For about 15 years I played theatre pipe organ in theatres in St.Louis and Holiday Inns around the country. I had an organ teacher that used to tell me a couple of things and one of them never left me. "If you play all 250 steps and four manuals on this thing, it's going to sound terrible," he said. "But if you learn to pick out 3 or 4 notes and make beautiful harmony, and it's in the right part of the spectrum, that sounds pretty."

So it's not what you play, it's where. And that's exactly the same thing we have to do in order to break pile-ups. If you have all of these Alphas and all of these antennas, and you have an MC-50 or a 444, or the Icom microphones, anything that's dynamic, usually, then your audio is not what it could be, or should be. How many times have you walked into a McDonald's and seen a Shure 444? It's the same microphone you have on your transmitters. It wasn't designed for this industry. It's got a response that is the reverse of what we want. You put that kind of microphone on your transmitter and make the meters fly, all of your power is down at the low end, in the mud. Then you can't tell the S's from the F's. It's all the low-high sibilances that give us the articulated speech. And those that are on top of the pile ups have the rich audio. They have the right balance of just the right lows and that real punchy 2K that's got to be up by about 6 to 10 dB. That's the audio that really stands out. Now, put your Alphas on and your stacked yagis and you're ready for some action.

The same thing happens on the receive side. We are stuck with these ridiculous speakers. Twenty-five cents worth. That's what it costs the manufacturers. They're total rubish and they're put in a $50.00 box and we buy them. That's not the answer. Again that speaker rolls off too hard. We must have a pick up to supplement our hearing and get that proper audio (remember the Fletcher-Munsen curve) so that we know if the guy is saying S's or T's or V's, etc. We have to equalize the audio.

Equalization can be done in a number of ways, and if you want to be on top, you have to do it. Sometimes it's not the prettiest audio, but it is the punchiest.

Now let me mention phasing. It is that magic word that we have been fed by the books and magazines, but no one ever explained it to us. What does it really mean? It is the most significant thing that we come across in our stations. You must pay attention to it when you put up antennas. The best way to teach phasing is with audio.

Using two microphones, I can demonstrate power doubling. With the two microphones, my power is increased by 3 dB. But did you know that you can't discern 3 dB? Medical science says we can't discern less than a 6 dB difference. Some guys say they can hear 1 dB. Well, no more will be said about those guys. What happens when we start changing the phasing? If the two microphones are placed out-of-phase, by adding a length of cable, very little audio comes through. What happens with two signals out-of-phase is that no signal comes out. By putting the two signals in-phase, we get a 3 dB increase. It is simply a development of time. The time it takes for the signal to travel the path.

Now let me show you another demonstration using a TS820 and a TS120 to demonstrate the effects of the Fletcher-Munsen curve and how to obtain a more desirable audio response. First, here's the MC-50 microphone. They don't sound very good. They weren't made for communications, but they are a "matching microphone." Do you know what that means? It means it is the same color as the transmitter. What we must understand is that I came here today to teach you one thing: the Fletcher-Munsen curve. If you know that, you got the whole thing.

Has anybody ever told you how to get on frequency? Obviously not, because I hear a lot of guys off frequency. It's real simple. Phasing. The two side bands are out-of-phase. If you listen, not hear, but listen, you can roll through a guys voice and hear that second sideband underneath him come out of phase. When you get right down and they're out of phase, you'll hear that second sideband cancel and you're right on the money. Phasing is everything to single sideband communications. We don't talk about it enough. It is the old human thing: let's not talk about it and maybe it will go away. Well, it doesn't go away.

With the MC-50, the audio doesn't sound good. There is too much low frequency response and the top end dies off at about 1000 Hz. There's nothing above 1500 that's worth talking about. Almost all of my power is down in a bandwidth between about 300 to 1000 Hz.

Now, by adding some equalization, the top end can be brought way up. You can understand what I'm saying much better than with the stock MC-50. That's one way to do it; to use active equalization.

"Testing... testing... one, two, three."

The second way is to simply change the microphone. Use a microphone that is properly equalized for you. In this case, it is an element that we've spent a lot of time optimizing. It has a big rise at about 2200 Hz and it is chopped at about 500 Hz. But with it, it is so much easier to understand what is being said. I think that is really what we have to pay attention to. It is the properly equalized microphone that is going to break the pile ups because its got the power spread out over that broad spectrum rather than just in a limited area. We have to be able to distribute the audio where the ear must hear it.

One thing that we note is that a lot of the DXpeditions going out today are using audio equalization. The Clipperton group came to me for help with the audio prior to their trip. Ron, ZL1AMO was excited about the equalization. He says he packs his underwear and a Heil headset and he's ready to go.

I hope that you can go home and experiment with your equipment. This is important. Hearing is a physical process. We can hear. Listening is a mental process. That is what you must do. Ask yourself why does this sound good or that sound bad. Listen, mentally dissect what is coming out of your radio. I think you will find that all of the radios have a deficiency in their audio output. The speakers don't have a good high end in them either. All of the microphones are in the same shape. I hope that I have been of some help to you. If you have any questions, I answer my own telephone. I'll be happy to chat with you. Thank you.

(K9EID)

If you didn't make it to the forum this year, I hope that you are able to follow the transcript. If you can get your hands on a book with the Fletcher-Munsen curve in it, Bob's talk will become a lot clearer to you. You may wish to re-read Bob's article, "Equalize that Microphone!", RADIOSPORTING No.6, April 1985, pps.27-28.

Katashi Nose, KH6IJ, and his XYL made it to Dayton again this year. Katashi is recovering from an illness but we hope that soon he will be winning contests again. An excellent CW operator that can never be accused for not signing his call sign frequently enough, he uses "KH6IJ" instead of QRZ.

CEOAA- SAN FELIX

The next presentation was given by Micky, CE3ESS, on the CEØAA - San Felix expedition. Most of the material about the island is classified so that the slides presented were mostly about the stations and the antennas used.

At the time, San Felix was about the third or fourth most wanted country on the DXCC lists. It took about seven years of trying, mostly by CE3GN to obtain permission from the Chilean Navy to operate from San Felix. The proposal from the navy for the DXpedition stated that there could be no civilians on the island. The only chance was to put two naval officers on the island. Finally, after a lot of "give and take" the Radio Club of Chile accepted the proposal.

There are two islands, separated by about 10 miles that count for CEØX. San Felix is the larger of the two. The second island, San Ambrosio, is not really accessible. Although civilians could go on this island, it was not physically possible because the only place to get ashore required climbing a 600 foot high cliff. But once on top of the cliff the ground was quite flat. It was just impossible to get on top so this idea was scrapped.

The only possibility was to get two naval officers on San Felix. The two operators, Max (CE3DVN, ex-CE9DVN) and Fernando (CE2GXY), arrived on the island September 2, 1984. Unfortunately, they didn't know English or anything about DXing, but they did their best at learning as fast as possible.

San Felix Island is located about 500 miles from the coast of Chile. It is about half a mile wide and one and a half miles long. The weather during the expedition was mostly cloudy all the time with very high winds. No vegetation grows on the island. It is a lava rock. However, to compensate for the adverse conditions, thousands of lobster (2,3,and 4 pounds) reside on the island, but after awhile...(hi)

Max and Fernando began assembling the station as soon as they arrived on the island. They worked day and night until the station was operational. They received a warm welcome from the Commander of the island who knew exactly what the operation was all about and he kindly donated his office for the "shack."

The station used two towers which supported dipoles for 160, 80, 40, and 20 meters. A three element triband TET antenna was sent from Santiago pre-assembled. The operators only had to put the elements on the boom. Very little equipment was taken. TS820's were used along with antenna tuners. A 6 meter rig was also taken, but only a few contacts were made.

By the end of the two month operation, some 31,000 QSO's were made on 160 through 10 meters. Seven contacts were made on RTTY using some Navy RTTY equipment.

Finally, a comment about the QSL problem. The Radio Club of Chile is handling the cards. The reason for the delay is due mainly to multiple cards being put in the envelope with only one return envelope. The group is doing a very thorough search through the log when the data doesn't agree with the log. Sometimes this involves setting the cards into another pile to be re-checked again, but due to the large volume of cards, the second check hasn't been completed.

If you are still waiting for your CEO cards, this is what you should do: Wait until May 15. If you haven't received your QSL's by then, send a letter (only a letter) stating what you sent, when you sent it, and all the QSO information via the QSL route. Don't send any more IRC's or QSL's. You will receive back an explanation as to what happened to your cards (and I suppose a QSL if you're lucky).

KERMADEC EXPEDITION

The next speaker was Ron Wright, ZL1AMO, who spoke about the 1984 expedition to Kermadec. Roly Runciman, ZL1BQD, presented the Kermadec story in the November 1984 issue (pps.8,10) of RADIOSPORTING. A couple of additional comments: The island, located some 600 miles north of Auckland, is a wildlife sanctuary which was the reason obtaining permission for landing and operating was a problem. Kermadec is about five miles across and 12 to 17 miles long.

The cyclone that proved disastrous had changed course for the worse. The skipper brought the yacht around to the south part of the island, to a small cove called Boat Cove where he thought the yacht would be safe since the cyclone was coming from the north. When the cyclone changed direction, the skipper decided to stay in the cove instead of heading out to sea. Well, the boat broke its moorings and crashed into the rocks and sunk. Luckily it sank in only about 30 to 40 foot deep water and the two marine biologists managed to salvage most of the diving tanks and other equipment off the boat.

AMATEUR RADIO IN MOZAMBIQUE

Chuck Martin, AB4Y, gave a short talk on the possibilities of a legal operation from Mozambique. He stated that in the short term the outlook did not look good for amateur radio. This due mainly to the fact that the country is in a civil war, with three groups: the National Resistance of Mozambique, army deserters, and freelance thugs, all battling it out against each other and against the government forces.

AB4Y is currently under "house arrest," which is as bad as it sounds. He merely can't leave the city except if he is leaving the country. He is not allowed to travel within the country.

Mozambique is about twice the size of California with about 14 million inhabitants. The country's total foreign reserve is only about $400,000. In the city, electricity is available for about 8 to 10 hours and water is available for 2 hours daily. There are no medical services to speak of since a doctor only earns $6/month. If any injuries occur, the patient has to be medivaced to South Africa.

Food is scarce in the city. The local residents are given rice and corn meal rations. But gasoline is easy to obtain at $2.75 a gallon.

Chuck is a diplomat so for him to deal with the Mozambique government requires permission of the U.S. government. He is not sure that he will be able to obtain a license, but he continues to try. Other recent activity: SM0BQE, 6W8SB, and OZ2BU (?) are all illegal. SM0BQE works for the Swedish telephone company and is currently assisting the Mozambique telephone company with a new telephone exchange. He can contact the government agencies much more freely than Chuck and he is also trying to obtain a license.

SM7DZZ is also in Mozambique. He is an instructor at the Merchant Marine Academy. He is attempting to obtain a license another way. (i.e., through the academy) There is also an electronics professor at the university, not a ham himself, but he wants to establish a club station at the university.

In conclusion, there doesn't seem to be any hope of a legal operation from Mozambique in the near future, but the long term looks promising. The biggest problem is the civil war.

The last speaker was Eric Scace, K3NA. He gave a slide presentation on the 1985 expedition to Clipperton Island. This will be presented next time.

Also next month the AMSAT forum will be covered.

1985 DAYTON CONTEST FORUM REPORT

Mike Spenuk, VE3JTQ

This year's Contest Forum at the Dayton Hamvention was probably the best ever. It was once again moderated by Tim Duffy, K3LR. Tim did a fine job of keeping the speakers within their allotted time period. Fourteen papers were presented this year, each one running about 15 minutes. The topics discussed varied greatly and as a consequence made sitting through the entire four hours quite bearable and enjoyable. There were only a couple of times when the forum seemed to "drag on," but these time periods lasted only a few minutes out of the total 240 minutes.

Unfortunately for me and for those of you that weren't there, I missed some of the presentations. Some of the material just seemed to go in one ear and out the other. The reason for this is that I had about 5 hours of sleep in the last four days before Dayton. Two final exams, and then the eight hour drive Friday night probably didn't help. It is ironic that one of the talks was titled, "How to stay awake for 48 hours."

I have summarized some of the papers that were presented. A few of the talks were mostly picture oriented so if you didn't make it to the forum this year, you missed it. The picture presentations included: "Japanese Contest Stations and Hamfair '84" presented by Doug Grant, K1DG. Doug showed us that there are some pretty big antenna farms located on the small lots in Japan. Also, the Hamfair was a sort of Dayton JA style, but except for the writing you would think you were actually at Dayton.

Another of the slide presentations was by Nigel Cawthorne, G3TXF on "Contesting from the United Kingdom." Nigel showed us what some of the contesters do in G-land. Joe Clayton, W2REH presented, "QRZ Contest - The Frankford Radio Club." Dave Zeph, W9ZRX gave us a rundown on the "Construction and Design of the W9ZRX Multi-Multi Station." A lot of interesting pictures, but Dave never mentioned any of the "real secrets" to a successful station.

Doug Grant, K1DG, (L. to R.) Nigel Cawthorne, G3TXF and Tom Frenaye, K1KI burning midnight oil at the hospitality suite.

The most exciting presentation was once again produced by Pete Putnam, KT2B; Steve Katz, WB2WIK; and Mike Crawford, WA2VUM: "The Illustrated Guide to K2XR 160 Meter Contesting." This display involved four slide projectors which created an audio-visual spectacle. Those that were there can tell you that this presentation was a little more than great. With the four projectors, the illusion of motion was created from still photographs. Next year, these guys plan to use six projectors for their production. And rumor has it that the topic will be Field Day.

Steve Bolia, N8BJQ, WPX Contest Director (left) presents Fred Laun, K3ZO, with a trophy for his 2nd world high and top South American score as K3ZO/HK3 in the 1984 WPX SSB Contest.

VE2USA - ZONE 2

Ted Rachwal, K8AQM gave a talk on the VE2USA contest-pedition to zone 2 for the CQ WW Phone contest of 1984. According to Ted, everything that could go wrong did. Zone 2 is about 1000 miles from Michigan and compared to the rest of the world, "zone 2 is nowhere." The rigs didn't need 10 meters. The expedition utilized two motor homes with 90 feet of Rohn 25G tower loaded on the roof of one of the motor homes.

Special permission was necessary to drive beyond the 50th parallel from the Quebec power company. The roads were rough and ice and snow were already covering the ground by mid-October. Two weeks after the phone contest, there is enough snow on the ground to hide small buildings. That's the reason that VE2USA wasn't on during the CW portion of the contest. The camp site used had cement pads laced with reinforcing rods which proved useful for the verticals. Other groups had operated from the camp site before.

Two 7 kW generators were taken. One was to run four MLA2500s, but it died a half hour before the test. Some of the guys ran off battery power so that the amplifiers could be used. Two TA33s were taken, in case one blew down. A small 30 foot tower, a 40 ft. and a 50 ft. tower were taken. Two

Martin Atherton, G3ZAY and Bill Tippett, W0ZV stopped to visit our booth.

element wire beams were used on 160, 75 and 40 meters, plus a vertical. The center of the 160 m wire was about 7 feet above the ground with the ends even closer to the ground. Ted feels that the group made more QSOs on 160 than any other group from zone 2.

The two groups responsible for the operation were the Eastern Michigan Contest Club and the Eastern Michigan Amateur Radio Club. The operators were: KD8SF, K8AQM, KA8POW and XYL KA8SEW, AC8W, N8CQA, WD8CRY, and K8DD.

Contesting in the U.S.S.R.

Tom Frenaye, K1KI, presented some interesting tid-bits on the sport of radio contesting from the Soviet Union. According to Tom, the best place to operate from is Georgia. Its latitude is similar to New York City. Many Dx-peditions are organized to the area, but it is very difficult for foreigners to obtain operating permits. There has only been one W8 or W6 in the 1950's that was able to operate "legally" in the U.S.S.R. and that was from a trade show station in Moscow. The rigor of getting a licence even for a Russian is quite unbelievable.

For a person living there to get a licence, questions on military service, overseas trips and connections, and even questions about parents and relatives are asked. Whether the person is a member of the party or not is also considered. Recommendations and character references are required. Youths 14 to 16 years old require parental consent. The applicant must provide circuit diagrams of the transmitter and receiver that he plans to use. A permit is necessary just to build the equipment, another to own the equipment, and of course, one to operate the equipment.

There are many rules that must be observed above the normal regulations that we all are familiar with. The Russian amateur can't work fascist countries. He can't discuss local geography or other topics that might be considered "strategic information." All QSLs are supposed to go via the bureau in Moscow; direct is not allowed. If a Russian receives too much foreign mail, he may lose his licence.

Ham radio is structured around the club activities. There is a requirement of 500 SWL QSL cards before one can even apply for an operating licence. The system is quite structured or organized in the Soviet Union. Tom indicated that "DOSAAF" seems to be the centrally organizing body. He wasn't sure what the letters stood for, but suggested that it was connected with the military-security organizations. (The DOSAAF translated means: Voluntary Union with Army and Air Force, it semi-military organization that includes all technical sports and its main purpose is to prepare youngsters for the regular military service and to provide technical training. The Amateur Radio is one of the branches. 'BMV) The Russians look at amateur radio as a "natural resource" for the country. Operating-wise, competition is the keyword. Contesting is encouraged and a log must be sent in if the station enters the contest and QSLing is a must!

Amateur radio is closely affiliated with the military. Dx-peditions and contest-peditions are organized through "military training exercises." On these expeditions, the operators are involved in not only QSO competitions, but DFing (Fox-hunt) exercises and grenade throwing competitions! The competitions are treated as with any other sport. Eliminations occur and finally the top few competitors compete against each other, usually with identical stations (that's rigs, antennas, and location).

Building the stations is not an easy task. Parts are hard to obtain. Many come via the clubs, jobs, and the black market. All equipment is difficult to obtain. Twenty-five year old technology is used, but the club stations use more up-to-date technology. The most "modern" equipment can be found in the big, contest - military expedition stations.

STAYING AWAKE FOR 48 HOURS

The few tips that I remember from Dick Norton, N6AA presentation on "How to stay awake for 48 hours, DX contest strategy", were pretty much common sense suggestions. First, in order to conserve energy you should minimize all movement. This means no turning your head to see the dupe sheet or the multiplier check list. Everything should be right in front of you. Arm movements should also be minimized. In particular, the log sheet should be arranged so that time, call, report received are adjacent to each other as apposed to spread across the page with maybe the sent report before the received report. The equipment should be set up so that tuning can be accomplished with minimal movement.

A great contester Dick Norton, N6AA, 9Y4VT (left) and a great DXpeditioner Walter Skudlarek, DJ6QT comparing notes.

If you ever listen to Dick when he's operating from 9Y4VT on phone, you will detect another energy saving technique. He says, "9Y4 Vicker Tango" and "Fi Ni Ni" (for five nine nine). This is easier on the mouth - less motion. But if everyone starts talking this way, what's going to happen to those guys trying to learn english off the air?

Foodwise, having your own private food service with simple things, is the way to go. Avoid food that requires both hands and messes up your fingers. No need to mess up the equipment. If you're running the contest alone, eating is still important. I like to think that the inventor of the microwave oven was a contester. Prepare a number of plates that are ready for popping in the oven throughout the weekend before the test starts. It takes only a minute to take the plate out of the fridge, pop it in the oven, make 20 more QSO's, and your meal is ready. Run over to get it and you're back operating and enjoying a good meal, too!

Dick also mentioned in his talk that when he absolutely can't stay awake any longer, he doesn't go to sleep, but rather meditates for a few minutes. He said if he goes to sleep he usually blows the contest because the hour nap turns into a couple of hours. Whether the alarm didn't go off or "someone" turned it off, the reason for over-sleeping isn't clear. The meditation is also more relaxing than the ordinary sleep, so when you go back to the operating you will be more "alive."

TECH TALK WITH NCØB

Bob Sherwood, NCØB gave two seminars. The first one dealt with contest receiver evaluation in which he pointed out that there is no standard between manufacturers for evaluating receiver performance. For example, the dynamic range of one receiver might be greater than that of another, but the second receiver might in fact be better because it was tested under more rigorous conditions. Perhaps Bob might write an article for RADIOSPORTING regarding receiver evaluations.

In his second talk, Bob discussed upgrades for the 3-500Z amplifiers, including using the new Eimac 3CX1200A7 and the 3CX800 tubes. Also discussed were modifications for 160 meter operation and methods to increase overall efficiency, as well as cooling methods.

Two visitors from the Far East: Kazu Ibata, JE1HYR, (left) and Saty Nakamura, JE1JKL, also known as NH6J, 5W1EZ, 5Z4CS, and other calls from the Pacific. Saty won the KCDXC pileup contest. He is one of the world's best CW operators.

Not Ready for Prime Time Contesting

The last "paper" was presented by Doug Grant, K1DG, and Rich Gelber, K2WR. I present it here in more-or-less its entirety.

"Good afternoon and welcome to CNN - the Contest News Network Dayton Edition. Brought to you in part by Don Miller light beer. It doesn't fill you up because it's not really there. I'm Doug Grant."

"And I'm Rich Gelber. Here's what's news. The Congress has approved legislation permitting amateurs to open tax free individual multiplier accounts. Now hams will be able to deposit excess multipliers earned during contests, entered during their youth and draw on them without penalty in later years as needed. Account balances will be adjusted annually according to the smoothed sunspot number."

"NASA announced today that the next shuttle mission carrying amateur radio will be scheduled next February during the ARRL DX contest. The ARRL has modified the contest rules to accommodate the shuttle's multiplier status. When over Europe it will count as 4U1VIC. When over the North Pacific it will count as the Pribilofs and over the U.S. it will count as the District of Columbia."

"This word was just handed me. The government of New Zealand has refused to allow visits by U.S. amateurs carrying nuclear powered HT's. Diesel and gasoline powered handi-talkies, however, continue to be O.K."

"CNN has learned this weekend that the sudden death of Albanian leader Enver Hoxha may have been caused by stress built up while denying amateur radio license applications."

"In order to test this theory, the U.S. government is asking as many amateurs as possible to apply for operating permission in Iran, Libya and Cuba. We'll have more after this word."

"If you lost your travelers checks, what would you do? Well, smart DX-peditioners carry Lloyd and Iris travelers checks. If they're lost or stolen, you can get them replaced in 319 countries around the world. And you don't have to get on the list. That's Lloyd and Iris travelers checks. Don't tune up without them."

"Japanese prime minister, Yukashiro Nakasoni appeared on a nationwide TV broadcast in Japan last week to urge all Japanese amateurs to have more QSOs with American hams. Nakasoni's broadcast was made at the request of U.S. president Ronald Reagan who accused the JARL of restricting imports of american signals."

"Japanese trade policies are being blamed by the Reagan administration for the current sunspot deficit, lower DX contest scores and the current housing shortage in Dayton."

"This word was just handed me. Ted Turner has decided to drop his bid to take over CBS and is trying instead to acquire control over the Frankford Radio Club since their stations are much more valuable."

"Chrysler Corporation announced today a take over of its own having purchased the R. L. Drake Company. Drake's new president, Lee Iacocca, has announced plans to re-enter the high performance amateur radio equipment market. Said Iacocca: 'We beat the JA's on the road. Now we'll beat them on the bands.' Iacocca reportedly plans to offer a five year/50,000 QSO warranty on all new models."

"The Hamvention committee today presented a special award to Dick Norton, N6AA for his 'How to stay awake for 48 hrs' talk at the contest forum. It is expected to alleviate the housing shortage among contesters next year since they won't need any hotels."

"The U.S. dollar continues to reach record highs against foreign currencies. The CQ Contest Committee has decided to adjust QSO point values to bring them into line with world market conditions. Beginning with this fall's World Wide DX contest, QSO's with DL stations will be worth 2.6 points, F stations - 2.4 points, G stations - 2.1 points, and JAs - 11 points. QSOs with UA's, OK's, and SP's will be worth what ever you can get for them on the blackmarket."

"It has been suggested that the long anticipated initial meeting between President Reagan and the new Soviet leader, Gorbachev take place on 15 meters. That way the band probably won't be open and they'll both be able to "save face" by blaming the sunspots."

"The ARRL training and development department in an effort to introduce more teenagers to amateur radio has signed an agreement with movie producers Steven Spielberg and George Lucas to produce new films to replace the aging "Hams Wide World." Films now being produced include: Raiders of the Lost Sunspot, QRM-lins, Ham Trek III - the search for K1MM, Indiana Jones and the DXpedition of Doom, and Eddy Murphy - live in Newington. Now here's Rich with today's sports report."

"In the annual contest draft held yesterday in Dayton's Stouffer's Plaza Hotel, N2AA has selected Doug Flutie as their first round pick. It is anticipated that Flutie will help the game plan of coach Gene Welch and team owner Buzz Reeves by running Europeans, passing multipliers around the band and kicking W3's off the frequency. Here's Doug with the market report."

"The Fleamarket closed slightly higher in very active trading. Among the more active issues: 2 meter mag-mounts up five-eights; Rohn towers 25 - unchanged; Kenwood radios closed up 10 at 940; 75 meter phone band down 25; CW DXpeditions QSO's up 5; 10 meter activity down 99%; 2 meter repeater spacing up 5 to 20; Sunspots closed at 40 - down from 100; DXCC countries up 1 to 319; and Stouffers up all night."

"We'll be back after this message:"

"Friends, is your radio shack cluttered with keys, microphones, clocks, speech processors, 2nd ops, 3rd ops, 4th ops, and DX edges? Well, now your lucky day has arrived because you can throw all that away and send for the amazing Shack-o-matic. Yes, its all these things and more. Its a keyer, a microphone, a speech processor, a remote VFO, two digital clocks, and more. It receives CW, RTTY, Slowscan, ASCII, packet radio, and mental telepathy. It is a compact wattmeter, SWR bridge, antenna switch, rotator, and mini-beam. Yes, the Shack-o-matic will be the last piece of gear you'll need in your shack forever. And it's guaranteed. The Shack-o-matic is available for a special introductory price of only $29.95 or 375 IRC's. Send your check or Money order to Box 777333, Starback, New York 12173. That's Box 777333, Starback, New York 12173. If you act now, we'll throw in absolutely free this Ginsu II JA phrase book. That's right. Now you too will be able to say things in Japanese like: QSL via the bureau, this frequency is in use, turn down your mic gain, and many others. So send $29.95 for your Shack-o-matic and the new Ginsu II phrase book. Act now and beat the postal inspector."

"In a recent guest editorial on the Contest News Network, senator Barry Goldwater declared that amateur radio is growing and in great shape. The Contest News Network recognizes its responsibility to air opposing viewpoints from irresponsible spokesmen. Here with an editorial response is Rodney Radiofield:"

Here he is: "Rodney Radiofield" or also known as Rich Gelber, K2WR saying:

"How ya doin'? How ya doin'? I'm OK now. Last week I was in rough shape. I got one of those mini beams. Now I got a mini signal. I got a tilt over tower. All of a sudden it tilted over. I got a heavy duty tower. It's so heavy I can't put it up. I have a problem with CW. I got a memory keyer. I can't remember where I put it. I don't get no respect. I got a dog. He plays with the keyer. Now he's got his own box at the QSL bureau. And Phone. Phone is no fun. I got on 28.550 at midnight - some FO8 tells me the frequency is in use."

"I tried 6 meters. I had to give that up, too. Last month I got a 6.2 Nielson rating. I don't understand all this fuss over China. I worked BY1PK and said please QSL. Twenty minutes later this guy delivers the card on a bicycle."

"And Field Day. I have no luck on Field Day. Last year we got a Honda generator - some kid drove off in it. We tried a solar powered station. The operator got a second degree burn. My buddy says we'll put up a wind generator. It made so much wind that the tower blew over."

"Amplifiers. I have no luck with amplifiers. I

got a hernia picking up my Alpha. The only doctor I could find was Doctor DX. And this Doctor DX thing, it's no bargain. No bargain at all. I got one. The only thing it told me was that my S line was deaf."

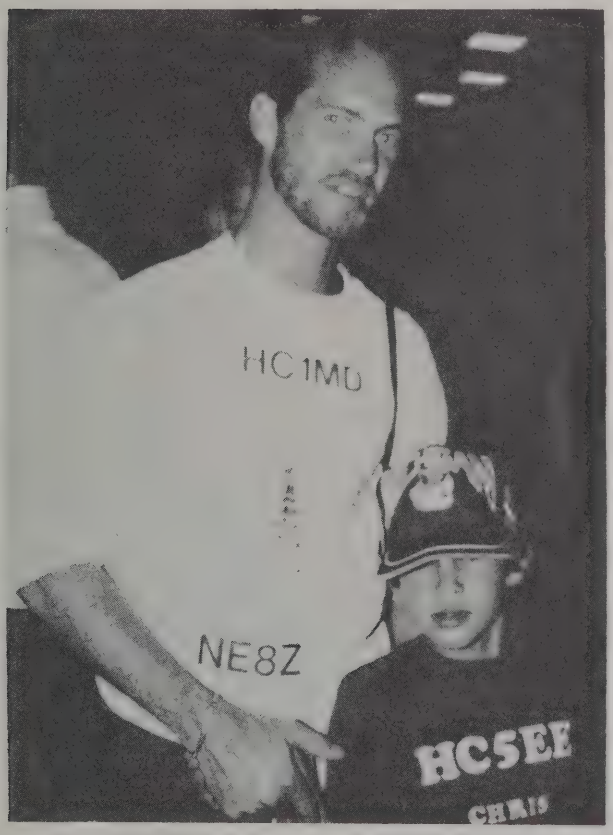
"I wanted to work the space shuttle. I built one of these turn-stile antennas. The neighbors thought they were supposed to jump over it and wait behind my house for the train."

"I tried slowscan, but I had to give it up. I got tired of receiving all of these ugly-grams."

"And my wife. Boy, do I have trouble with my family. My wife had twins. I gave the second one back to the doctor. I thought it was a dupe."

"You've been great. Thank-you very much."

Well, that's about it. If you didn't make it to the forum this year, maybe now you might try harder for next year. I suspect the program will be even better. See you there. (VE3JTQ/W4)



Dr. Rick Dorsch, NE8Z, HC1MD, HC9A, etc. enjoyed the Hamvention and seeing old friends with his son Chris. Rick holds an all time world record in the CQ WPX SSB Contest on 15 meters monoband - over 6 million points which is the highest ever made on a single band!

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THE 4 - ELEMENT W2PV YAGI

Bill Myers, K1GQ

Most of you know of the series of articles in HAM RADIO by Jim Lawson, W2PV. In that series, Jim showed that there are particular boom lengths which have naturally good radiation patterns (i.e., small back lobes). The two smallest magic boom lengths are 0.3 and 0.75 wavelengths. The Yagi designs in Jim's series are based on these boom lengths, with equally spaced elements.

For several years there has been a '4-element PV' yagi design drifting about in YCCC waters. The antenna was indeed designed by Jim, but is not shown in the HAM RADIO series. This design is the exception that proves the rule: the boom is 0.57 wavelengths, yet the front-to-back ratio is exceptional. Also violated is another old canard that the 'optimum' reflector spacing is 0.2 to 0.25 wavelengths; Jim's design uses 0.12 wavelengths!

The plots show the performance of the PV-4, as calculated by my antenna modeling program, using the original element construction given by Jim to Saul, K2XA. Notice that the F/B ratio vs. frequency curve has a very sharp peak. The gain and VSWR tend to degrade rapidly at the high end of the band - most Yagis (and particularly the PV-4) will perform well on CW if tuned to the center of the band, but will suffer severe degradation in the phone band if tuned for the CW end of the band. If you are only concerned with improving the match between the antenna and transmission line without shifting the gain and front-to-back curves, you can vary the length of the driven element considerably without changing the other element lengths. The dimensions shown here for the PV-4s have inductive reactance at the design frequency - my gamma matches like to see capacitive reactance so I've shortened my driven elements by 8 inches on 14 MHz, 6 inches on 21 MHz and 4 inches on 28 MHz.

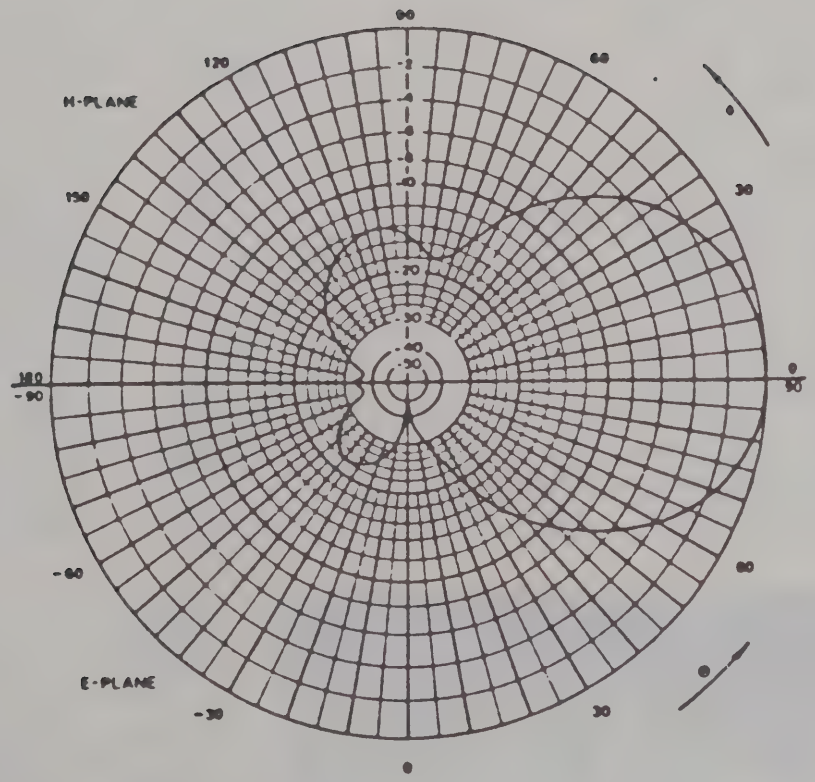
The PV-4 uses unequal spacing between elements, with three elements bunched together toward the reflector end of the boom; as a result, the antenna is tail heavy. The center of gravity of my 14 MHz PV-4 is nearly two feet behind the center of the boom, so don't count on being able to use the boom to mast bracket as a boom splice! Also, with more boom sticking out one side of the mast than the other, the antenna is unbalanced in the wind and generates more torque at the rotor than does a symmetric antenna.

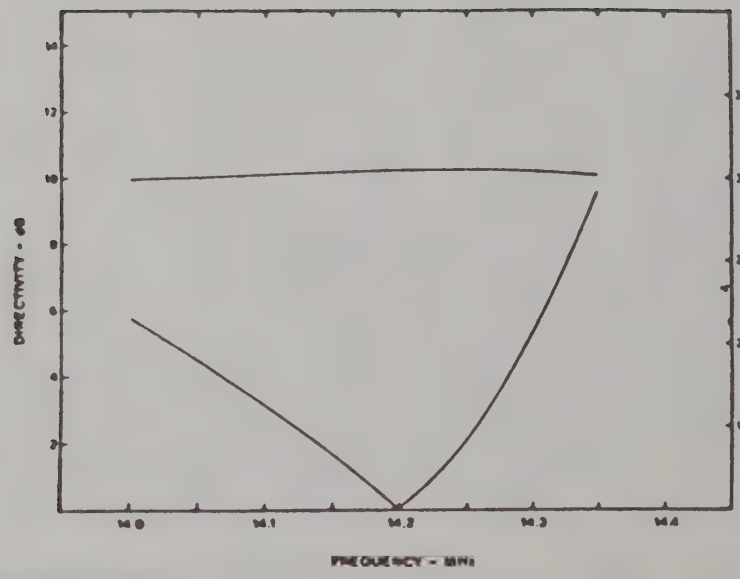
On the positive side, the 20 M and 15 M boom lengths are not resonant in any ham band, so interactions between fixed and rotating antennas are less likely to be a problem. You get a ton of gain (to add just one more dB you would have to nearly double the boom length), and an incredible front-to-back ratio (albeit over a narrow frequency range). (YCCC 'Scuttlebutt')

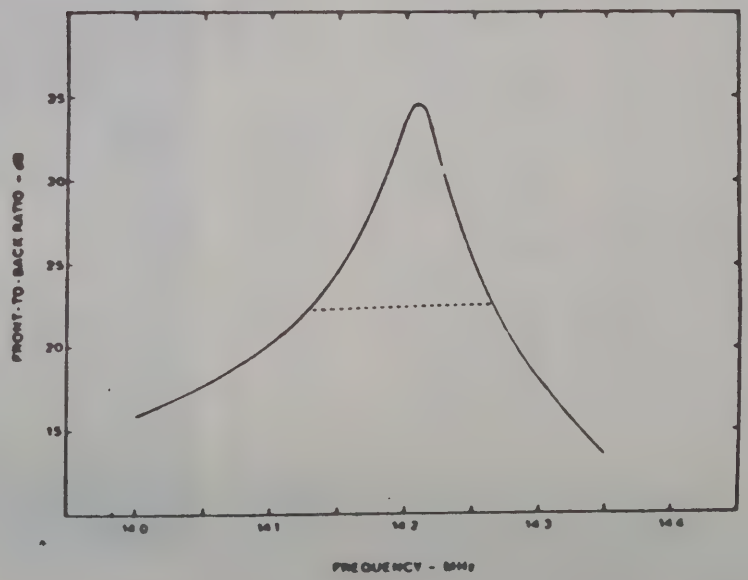
The following pages contain the dimensions, radiation diagrams, gain and SWR curves for the 10, 15 and 20 meter 4 element Yagi antennas as designed by late Dr. Jim Lawson, W2PV.

In the next issue we will publish the W2PV antenna design program listings for the Commodore 64 and IBM PC computers as described in the RADIO-SPORTING, March 85 issue by Alan Hoffmaster, WA3EKL.

14 MHz PV-4 YAGI







Designer	W2PV
No. Elements	4
Design Freq.	14.2 MHz
Boom Length	40 feet
Directivity	10.14 dB
Impedance	16.6+j6.1 ohms

Element	Equivalent Cylindrical Element (wavelengths)		Half-element Construction (inches)						Spacing From Reflector (inches)
			Center		Middle		Tip		
	halflength	dia	length	dia	length	dia	length	dia	
Reflector	0.2625	0.0010419	72	1	66	7/8	73.2	3/4	0
Driven El	0.2411	0.0010419	72	1	66	7/8	63.6	3/4	102.3
Director 1	0.2341	0.0010419	72	1	66	7/8	57.6	3/4	266.7
Director 2	0.2270	0.0010419	72	1	66	7/8	51.6	3/4	476.6

21 MHz PV-4 YAGI

Designer	W2PV
No. Elements	4
Design Freq.	21.3 MHz
Boom Length	27 feet
Directivity	10.11 dB
Impedance	17.1+j7.1 ohms

Element	Equivalent Cylindrical Element (wavelengths)		Half-element Construction (inches)				Spacing From Reflector (inches)
			Center		Tip		
	half length	dia	length	dia	length	dia	
Reflector	0.2529	0.0014619	72	7/8	69.6	3/4	0
Driven El	0.2406	0.0014619	72	7/8	62.7	3/4	66.2
Director 1	0.2330	0.0014619	72	7/8	58.4	3/4	179.1
Director 2	0.2251	0.0014619	72	7/8	54.0	3/4	317.2

28 MHz PV-4 YAGI

Designer	W2PV
No. Elements	4
Design Freq.	28.6 MHz
Boom Length	20 feet
Directivity	10.11 dB
Impedance	16.8+j7 ohms

Element	Equivalent Cylindrical Element (wavelengths)		Half-element Construction (inches)				Spacing From Reflector (inches)
			Center		Tip		
	halflength	dia	length	dia	length	dia	
Reflector	0.2621	0.0019830	72	7/8	33.4	3/4	0
Driven El	0.2401	0.0019830	72	7/8	27.8	3/4	60.8
Director 1	0.2320	0.0019830	72	7/8	24.8	3/4	133.4
Director 2	0.2238	0.0019830	72	7/8	21.0	3/4	236.2

KENWOOD TS-930S SSB FILTER MODIFICATION

Yuri Blanarovich, VE3BMV

WHY BETTER FILTERS?

More demanding operators such as serious contesters and DXers are quite often exposed to high level of interference and strong signals on the band. Especially during the major contest when the bands are wide open to the area of high concentration of amateur population, the signals are wall to wall and strong. Three most important receiver features come to play: front end, IF filtering and rest of the QRM fighting bells and whistles. Let's focus on the Intermediate Frequency (IF) filtering, assuming that front end can take the load. We will discuss Kenwood TS-930S modifications in particular.

The selectivity of the receiver is determined by the quality of it's filters. In the filter we are looking for good steep skirts (a rectangle would be ideal), required bandwidth (2 kHz minimum for SSB) and low insertion loss. A good filter should also have low leakage outside of its passband curve (better than 60 dB).

The shape factor of the skirts is the most important factor in the filter design. The more poles in the filter and better quality crystals used - the steeper skirts and less attenuation is obtained. The bandwidth is given by the filter design and we can't do much about it. Filter impedance has to be matched to the circuit impedance for optimum performance. Mismatched impedances can deteriorate the performance of whole circuit.

TS-930S receiver is a quadruple conversion superhet with IF frequencies of 44.93 MHz, 8.83 MHz, 455 kHz and 100 kHz. The first IF is using a 10 kHz wide monolithic crystal filter at 44.93 MHz and this filter is "wired in" all the time.

The second IF filter is 2.7 kHz (at 6dB down) and 4.0 kHz (at 60 dB down) at 8.83 MHz. Those are the stock Kenwood filters. The Fox-Tango Corp. and International Radio offer filters with 2.1 kHz bandwidth at 6 dB down with steeper skirts.

The third IF filters have similar characteristics at a 455 kHz IF frequency. By "overlapping" the 2nd and 3rd IF filter characteristics electronically we can reduce the bandwidth of this combination from its maximum (2.7 or 2.1 kHz with Kenwood or FT filters resp.) down to few hundred Hertz by turning the SSB SLOPE TUNE controls.

The major factor here is the shape factor of the filter skirts and its bandwidth. The bandwidth comes to play when the interfering signal might be passing through the first filter and causing problems in the IF amplifier chain, before it is filtered out by the second filter. So the steeper and narrower (within the reason) filter we can get, the better off we are.

Having experienced the improvement of my old Drakes by installation of Sherwood filters, I immediately decided that I wanted to soup-up my TS-930S in a similar way with Fox-Tango filters.

FILTER INSTALLATION

Before I proceeded with the installation, I carefully measured the characteristics of the original Kenwood filters. I will show you a simple but very effective procedure by which you will be able to measure the characteristics of the filters without any external equipment. Your TS-930S has everything you need. All you need is graph paper and a pencil. First, the digital display has to be modified to display the 10 Hz increment. (This modification has been described before by VE3AZ (RADIOSPORTING, Feb. 85.) It requires to ground the vacant pin on J8 plug of the digital board. To obtain the passband curve, tune in your receiver to 10.1 MHz (or any other frequency that is a multiple of 100 kHz calibrator.) Turn your calibrator on (switch behind the sliding top cover) and tune across the steady tone you hear from your calibrator. At the peak you should be getting a reading of about S9+10 dB on your S-meter. As you tune across the signal it will drop off to zero on both sides. You can note the points (frequencies) where it drops 6 and 60 dB down from the maximum, or better, plot the whole curve in small increments. You can do this with your SSB SLOPE TUNE set at various settings and get the true picture of you bandpass characteristics. You would see that your curve is not exactly a rectangle and that it also changes with the slope tune settings. It's good to know this.

I have ordered my SSB filter kit (Part No. FTK-930, including filters PN 2909.1 and 2909.2) from the Fox-Tango Corp. and they arrived promptly and with complete instructions.

One note is in order. You should proceed with this modification only if you are capable of soldering. If the smallest tool you ever worked with is a jackhammer, it would be better to let someone else do it. Only you are responsible for any damage that may result from improper installation of filters. Kenwood will honor their warranty if it is obvious that filter installation did not cause the problem. I.e. blown final transistors, etc. International Radio, Inc. is modifying radios for a nominal fee. If you are confident and have the filter kits, you can proceed with the modifications. It is always advisable to read the whole procedure before the actual installation is started. Familiarize yourself with the modification and then cautiously proceed.

The following modification is reprinted from the instructions supplied by the Fox-Tango Corp. I understand that International Radio has a procedure where the main board does not have to be removed to install the filters. I have not seen this one, so cannot comment on it.

This will give you an idea as what is involved and I would like to emphasize that the alignment procedure should be done very carefully, because the narrower filter is more critical for proper alignment and is not as "forgiving" as wider ones.

FTK-930
Dual Filter Kit

INSTALLATION INSTRUCTIONS

FOX-TANGO 2.1 KHZ SSB FILTERS FOR THE KENWOOD TS-930S

Thank you for selecting this fine Fox-Tango product. These filters will sharpen the SSB selectivity of the TS-930S significantly, and will allow the -6db passband to be set as low as 300 Hz for CW operation.

The following instructions outline recommended installation procedures for retrofitting the TS-930S with two Fox-Tango 2.1 kHz SSB filters. Though the installation is not particularly difficult, please work carefully, as the Fox-Tango Corporation can take no responsibility for any damage that may result from improper installation of the filters.

PLEASE READ THESE INSTRUCTIONS THROUGH COMPLETELY AT LEAST ONCE BEFORE STARTING THE MODIFICATION.

( ) In the following instructions, the word "board" refers to the large (about 12" X 12") printed circuit board that sits under the chassis on the TS-930S. All modifications take place on this board.

( ) Remove top and bottom covers from the TS-930S.

( ) Place the rig upside down, with the front panel facing you. All references to "left" and "right" edges of the board refer to the left and right sides as the rig sits in front of you in this position.

( ) Label the 6 grey coax leads that terminate on the board along the left and rear edges. Mark the labels 1 - 6 starting from left front to right rear (you will use these labels to help you locate the proper jacks when later replacing these coax leads).

( ) Pull 6 grey coax leads and one small white lead from their sockets along the left and rear edges of the large printed circuit board. Pull straight up on the connecters with needle-nose pliers so as not to stress the board or plugs. Withdraw those along the rear of the board from the two holes in the heat sink (the heat sink is the strip of aluminum angle running across the rear of the board).

( ) Carefully pull plug number 18 in the right rear area of the board, and the grey coax that is just forward of the wide multi-pin plug 21. These plugs are on wires emanating from the harness along the right side of the board.

( ) Remove all screws holding the board to the chassis, and the six screws holding the heatsink along the rear edge of the board to the chassis. DO NOT remove the two or three screws along the rear edge of the board that only bind the pc board to the heatsink.

( ) Remove two screws that secure two i-f can ground wires to the chassis near the left, rear corner.

NOTE: When you think you have removed all of the screws, gently (very gently) tug upward on the rear of the board. Locate and remove any remaining screws that seem to be holding the board to the chassis. Repeat the gentle tug and screw removal until the board lifts up easily. There are OVER 20 SCREWS to be removed. One in the front left area is a small machine screw. All others are round head sheet-metal type.

Rev. 3

( ) Gently lift the board to a vertical position, shifting any harnesses (particularly along the right edge of the board) aside to allow the board to swing up. The front edge of the board must slide along the chassis toward the rear of the rig and be lifted over some protrusions as the rear of the board is raised to a vertical position. Brace the board securely in the vertical position.

( ) Locate and become familiar with XF1 (the 8.83 MHz monolythic crystal filter) and CF1 (the 455 kHz ceramic filter). XF1 is about 1/2" wide, 5/8" high, and 2" long and is just to the right of center about 3" back from the front edge of the board. CF1 is about 5/16" wide, 1/2" high, and 1" long and is near the right edge of the board, about 2" from the front edge of the board. Also, look at the foil side of the board, and locate the four pins and the case ground tabs of each filter. There are two ground tabs on XF1 and one on CF1. The case ground tabs are near the center of the body of each filter. NOTE: After you remove XF1, you may see "XF3" marked on the board (under XF1).

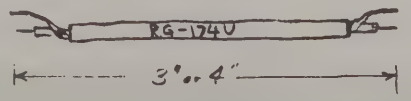
( ) Use 1/8" solder-wick and a hot 25 watt pencil-type iron to remove all solder from each pin and ground tab. Get in and out fast with the iron and solder wick so as to not overheat the filters or the board. If multiple passes are required with the solder wick, avoid overheating any pin or tab by making one pass at each pin or tab in turn, until all are free. If, after essentially all of the solder has been removed, any pins or ground tabs are still stuck to the foil, gently move them from side to side with tweezers to break them loose.

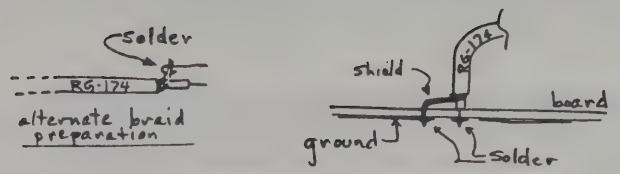
( ) Gently pull the filters from the board. If solder on a pin prevents it from slipping out of its hole, heat it as you pull gently on the filter body.

( ) If you do not have a 455 kHz CW filter installed, and do not plan to install one, you should skip the following note, and continue with the installation.

NOTE: If you have a 455 kHz CW filter installed, or have plans to install one, you will have to locate the F-T 455 kHz SSB filter (#2809.2) along the left side of the chassis, near the rear panel (near where the two i-f can ground wires are located). To do this, make one 3" and the 4" coax lead each 16" long, and use these leads to connect the 455 kHz F-T filter (#2809.2) to the board. Connect as described below, except do not mount with double-stick tape until after the board is replaced. At that point, fasten the 455 kHz F-T filter (#2809.2) to the chassis in the left rear corner with double stick tape. You may have to (carefully) reshape the two i-f can ground wires to allow room for the filter. You should also install a jumper from a threaded stud on the filter to one of the ground screws near the filter.

( ) Prepare 4 pieces of coax as shown below. Make three of them 3" long, and one of them 4" long. Keep the exposed center conductor as short as possible to prevent it from acting like an antenna and causing leakage past the filters. The center conductor should extend 1/4" and have 1/8" of insulation on it. Tin the center conductors and the shields. DO NOT overheat the shields and do not move the shields while they are hot (they will melt the center conductor insulation and cause a short). Be sure no "whiskers" from the shield are left where they might touch the center conductor and cause a short. Keep the shields as slender as possible (comb out shields carefully and use a minimum of solder on them). If you have trouble getting a shield through a hole in the board, enlarge the hole or use #20 or #22 solid copper to make the shield-to-board connection (see sketch at top of page 3).





coax-board connection

( ) Shape the shield of one end of each of the coax leads as shown in the above sketch and solder them into the pairs of holes vacated by the filter input and output pins. Be sure the shields of the coax leads all go into the holes that are in the ground foil (the ground foil is the massive foil area that winds its way around the board). Use the 4" coax at the left end of the CF1 slot.

( ) Check for shorts between the coax center conductor and ground (use an ohmmeter). If there is a short, you will read zero ohms. If things are okay, there will be some measurable resistance. Watch especially for "whiskers" from the coax shields that might contact the center conductor.

( ) Locate C419 and C420. They are just to the rear of the CF1 slot and adjacent to the 455 kHz CW filter space. The F-T filter will lay on its side in the CW filter space, and one of the studs on the F-T filter will fall between C419 and C420. Check to see that there is room for the stud to lay between these two capacitors. If there is not, heat the leads of C419 and/or C420, and spread these capacitors apart to allow for the stud.

( ) The F-T 8.83 MHz filter (#2809.1) will sit on its side and be affixed to the shield around Q75, Q76, etc. This shield is a half inch or so to the rear of, and slightly to the right of, the space from which XF1 was removed. There will be some components on the board under the new F-T 8.83 MHz filter (#2809.1). If any of these components stand more than about 3/8" above the board, they should be moved closer to the board. To do this, heat their leads and fold them over slightly, or push them closer to the board.

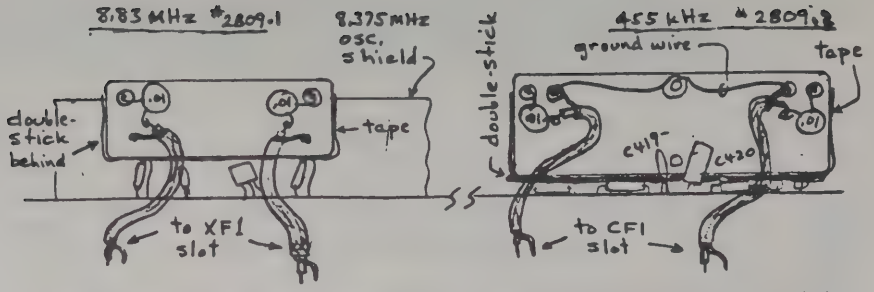
( ) Reinstall the board. Be sure no loose wires or coax leads get trapped under the board. Leave board mounting screws loose as you put them in. After all screws are started, tighten each of them snugly. Triple check to be sure ALL of the screws have been tightened. Replace each of the coax leads (seven in all) and plug 21.

( ) Prepare the two filters for mounting. Cover the top, one long side (the side opposite the pins), and the two ends of the 455 kHz filter (#2809.2) with black electrical tape. Also put tape on the stud which will sit between C419 and C420. See sketch on page 4). Cover one side (the side adjacent to the ground pins) and the two ends of the 8.83 MHz filter (#2809.1) with black electrical tape.

( ) Mount the 455 kHz filter on its side in the 455 kHz CW filter space. Put double-stick tape on the side, and gently press the filter down against the components that would normally be under the 455 kHz CW filter. The filter pins should be away from the board.

( ) Apply double-stick tape to the top of the 8.83 MHz filter (#2809.1), and mount the filter to the shield around Q75, Q76, etc. so that its pins face the space from which XF1 was removed. The tape on the lower side of the filter should just rest on the components that are under the filter. The filter should be oriented with the ground pins close to the board. The coax leads from the XF1 space should easily reach the pins on the F-T filter.

( ) Connect the four coax leads to the filters as shown below. The .01 cap leads should be only 1/8" inch long before they are curled. The caps should lay close to the filter body.



( ) Connect a piece of bare copper "hookup" wire from the 455 kHz filter (#2809.1) upper stud to the two inner filter pins and solder.

ALIGNMENT

If you located the F-T filters close to the original filter locations, the only mandatory alignment is the USB and LSB carrier oscillators. If you mounted the 455 kHz F-T filter (#2809.2) at the end of two 16" coax leads, it is desirable to adjust one 455 kHz i-f transformer. If you want to maximize the -6db passband and optimize filter skirt steepness, an additional alignment step is required. These adjustments are described in the paragraphs below.

=( )= If you located the 455 kHz filter (#2809.1) at the rear left of the chassis, a slight adjustment of L131 can be made to compensate for the effect of coax capacitance on the circuit, thereby providing a slight increase in i-f gain. However, since L131 serves both CW and SSB filters, a compromise setting must be used. This coil is located just in front of the 455 kHz CW filter slot, about an inch from the left end of the filter. Adjust it (using the calibrator signal as a source) so that the S-meter reading is more-or-less maximized in both SSB and CW modes, or peak it in the mode you use most of the time. If you locate the 455 kHz filter close to the original filter location, there is no need to make this adjustment.

=( )= If you wish, you can maximize the -6db passband width (for best audio) and optimize skirt steepness (for best QRM rejection) by precisely aligning the i-f signal in the two F-T filters. This is done by touching up the 8.375 MHz oscillator (it is in the shielded area immediately behind the new F-T 8.83 MHz filter (#2809.1)).

You will need to accurately measure passband width to do this. To measure passband width accurately, you will have to measure transceiver operating frequency accurately. The easiest way to do this is to jumper the (vacant) left most pin of plug J8 on the digital control board (under the speaker) to ground with a 4700 ohm resistor. You can do this without removing the speaker bracket. J8 is located along the front edge of the digital control board and can be seen by looking down between the front panel and the speaker. The vacant pin of J8 is just behind the DIM/NOR push button. Push one lead of a 4700 ohm resitor into the (vacant) pin 1, and clip the other end to ground. The frequency display should now show frequency down to the nearest 10 Hz.

Set the Slope Tuning controls for maximum passband width (max clock-wise and counter clock-wise respectively). Now turn the calibrator on, and tune across it slowly. The

S-meter should read up in the vicinity of S9 when the calibrator signal is centered in the passband. Read the frequency on each side of the passband where the S-meter reading is S3 (the UP-DOWN switch on the mic base is handy for setting the frequency exactly at the point where an S3 reading is obtained). Now subtract the smaller of the two readings from the larger of the two readings. The difference should be in the range 2200 to 2500 Hz. Now adjust TC3 (TC3 is in the left front corner of the shielded area behind XF1) a few degrees clock-wise. Again record the frequencies at the S3 points and take the difference. If the difference is greater than the original reading, move TC3 a few degrees more in the same direction. If the difference is smaller, move TC3 in the other direction. By trial and error, find the setting of TC3 that gives the largest difference between the two S3 readings. This procedure will provide best audio quality and best QRM rejection from the new filters.

=< >= The last and most important step in alignment is the adjustment of the USB and LSB carrier points. First, form the coax leads so that they will not press against the bottom cover of the rig. Check all other wiring so that it will not interfere with, or be pinched by, the bottom cover. Replace the bottom cover and then the top cover. NOTE: Make this adjustment only after reinstalling the top and bottom covers.

Turn the radio on, and let it sit for at least an hour before proceeding with this adjustment. The carrier oscillators, like any crystal oscillators, are subject to 50 to 100 Hz drift during warmup. The adjustment of these oscillators is relatively critical, and should be done only after these oscillators have stabilized.

Now set the rig up on its left side. Connect a dummy load to the antenna, or get a friend who knows your voice on the air with you. Use the sound of your friends signal, the sound of your own voice (via the monitor), and your friends opinion of your transmitted audio to judge proper placement of the carrier frequencies in the following adjustment procedure.

Locate the slot in the bottom of the case that is about 5" from the left (lower) edge of the rig and adjacent to the grilled area that covers the rear half of the bottom of the case. This slot runs from front to back and is about 1.25" long. Through this slot you will see three trimmer capacitors. Locate an insulated screwdriver that will fit the slots in these trimmers.

Set the Slope Tuning controls full clockwise and counter clockwise to provide maximum passband in the receive mode. Now, while operating USB, set the first trimmer (nearest the front of the rig) for receive and transmit audio sound you feel is desirable. If you spend a lot of time in pile-ups and working DX, you will want to make these adjustments with the processor on, and favor the higher frequency voice components. If you are primarily a rag chewer, you may wish to make them with the processor off, and slightly favor the voice lows, for a more mellow sounding audio. During this adjustment you may have to compromise between how you think your voice should sound (using the monitor), how your friend thinks your voice should sound, and how you think he should sound. Only a slight adjustment of the trimmer will be required to make a noticeable change in the location of the passband, and hence the sound of your signal.

Once the USB trimmer is set, change to LSB and set the second trimmer (the center one) in a similar manner.

As a check on the above adjustments, tune to a clear frequency, and turn the AF gain up so you can clearly hear the "white" background noise. With the VOX off, switch back and forth between USB and LSB. If both carrier oscillators are set the same relative to the filter passband, the white noise should sound the same in both positions of the mode switch. If there is any significant difference, tune around a bit and/or have someone listen to your signal, and decide which sideband audio characteristic you prefer. Then set the carrier oscillator trimmer of the other sideband so that the white noise sounds the same in both positions of the mode switch.

For yet another check, tune across the calibrator <marker> signal and note where the S-meter reading drops about 1 S unit from its highest reading. This point should occur about 400 to 500 Hz away from zero-beat. As you continue toward zero-beat, the S-meter reading should go to zero before you actually reach zero-beat. You should hear nothing of the calibrator signal on the "other" side of zero-beat.

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FOX-TANGO CORPORATION
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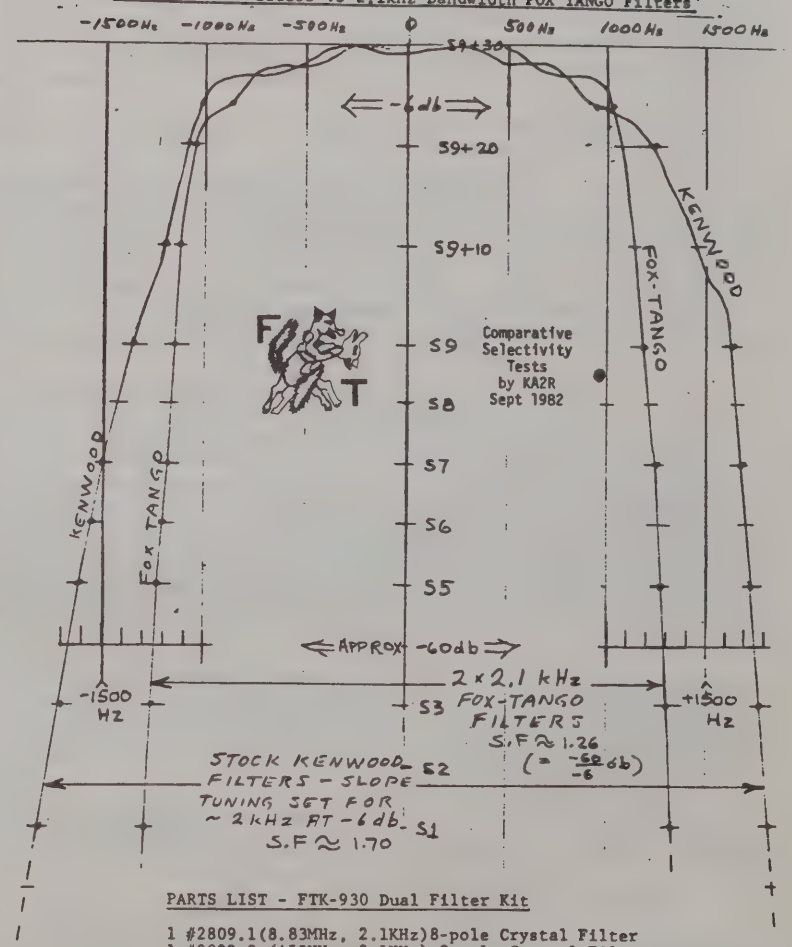
TS930S Stock Filters vs 2.1kHz Bandwidth FOX TANGO Filters

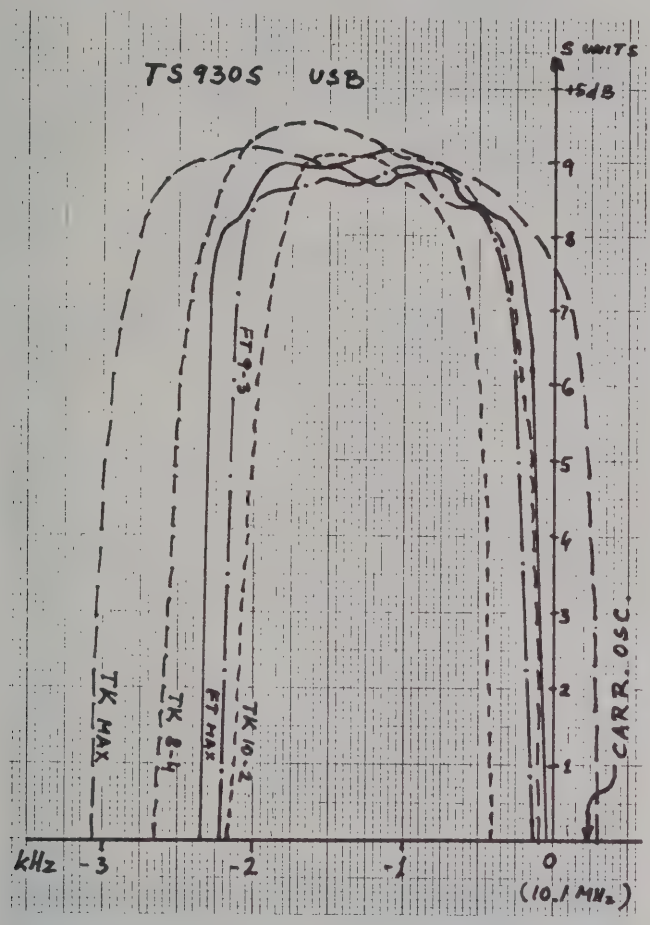


PARTS LIST - FTK-930 Dual Filter Kit

1 #2809.1(8.83MHz, 2.1KHz)8-pole Crystal Filter
1 #2809.2 (455KHz, 2.1KHz) 8-pole Crystal Filter
6" Double Stick Mounting Tape
36" RG 174/U Coaxial Cable
1 4700-ohm ¼ watt resistor.
4 0.01/50V capacitors.

RESULTS

The picture below shows the plotted bandpass curves taken on my TS-930S with my sets of filters. (This could vary due to variation in characteristics and alignment on other sets.)



Starting with TK MAX curve, this one belongs to the original set of TRIO-KENWOOD filters with the SSB SLOPE TUNE set to its maximum settings - wide open (LOW at 7 o'clock and HIGH at 5 o'clock). We can observe the shape of the curve - not exactly a rectangle or ideal curve shown in books, but we can see the saddle at the top middle portion of the curve. The bandwidth at the bottom is about 3.4 kHz.

TK 8-4 curve shows the bandpass measured with LOW and HIGH settings at 8 and 4 o'clock setting. We can see that the top portion of the curve has the saddle filled in and we see some "gain" centered around -1.6 kHz. This is probably the most desirable curve of all we see here - for "HI-FI" reception. The bandwidth at the bottom is about 2.5 kHz.

TK 10-2 curve represents LOW and HIGH settings of 10 and 2 o'clock. We can see some attenuation at the top, compared to the previous one. This is still a good bandpass with some "gain" around -1.4 kHz and a little bit of attenuation where the basses would be coming through.

On all the curves you can see the slope of the skirts, they more or less remain the same and are determined by the slopes of both filters. Actually one side belongs to the second IF filter and the other to the 3rd IF filter.

The FT MAX curve now belongs to the Fox_tango 2.1 kHz filters with the SSB SLOPE TUNE set at its maximum settings 7 and 5 o'clock. You can see the steeper skirts and bandwidth at the bottom is about 2.4 kHz. The attenuation at the top is about the same as the TK filters. The shape at the top is a bit better since it is closer to that rectangle.

FT 9-3 curve belongs to LOW and HIGH settings of 9 and 3 o'clock. We don't see as much change in narrowing the bandpass at this point. Because we started with narrower filters, it takes a little bit more before both filter curves start overlapping and decreasing the bandwidth. The bandwidth at the bottom is about 2.1 kHz.

I have found that the best response and compromise between selectivity and desirable shape of the filter bandpass on my set is when I set the LOW and HIGH controls at 8 and 4 o'clock. This is where I keep them most of the time. This also gives you "IF SHIFT" tuning if you grab both knobs and turn them clockwise or counterclockwise. (Maximum two notches with this setting.)

To obtain the best audio response on receive and transmit, the carrier oscillator should be set to about 300 Hz below the edge of the bandpass curve. Setting it too close would rob you of those needed high tones in speech and you would sound muffled. Setting the carrier oscillator farther away would cause the voice to sound tiny, without color. Again it is important to know this and perform the final alignment very carefully and to check your audio using your favorite microphone while transmitting and listening on another receiver. Minute adjustment of the carrier oscillator trimmer can make your audio rough.

If you plot both the USB and LSB bandpass curves, you would probably find that the shapes look a bit different and this explains why the audio sometimes sounds a little different when switching between USB and LSB (even if carrier oscillators are set properly). It works as an "equalizer" bringing up one portion of the audio spectrum and suppressing the another. For this reason, if you want to be picky about your signal, it is good to know your bandpass and then tailor the microphone and audio response (use equalizer) to obtain perfect audio.

YOU'VE GOT IT, USE IT!

One note on importance of the audio and intelligibility of signals at the other end under special propagation conditions. Sometimes we experience the doppler shift due to propagation, typically going through the auroral zone, multipath, backscatter, etc. The signals are frequency shifted, sometimes with multiple shifts, and that makes audio sound more bassy and distorted. If we start with bassy signal, this becomes so bad that at times we can hardly understand the other station. The audio is so muffled that you can hardly make out the call sign. Speech compressors tend to make this worse. The cure for that problem is to artificially bring up more highs and attenuate the lows. The equalizer is a handy gadget to have. If you hear fluttery signals, turn your highs up and you would see that you can crack that pile-up much easier.

The selectivity obtained in the IF stages is more desirable than selectivity in the audio stages. The AGC control voltage is usually derived after the IF chain. Signals that get through the IF

stages will control the AGC bias and the gain of your RF and IF chain. This is why only audio filtering is almost useless. The receiver is "closed" by the interfering signal and the audio filtering after that is not very effective. It helps to suppress interfering tones, but if the receiver is "closed" by the interfering signal, this often masks the signals we want to receive. This is why it really pays to get the selectivity up front, as close to the antenna as possible.

Additional QRM fighting tool is the NOTCH circuit. For the same reasons, the notch should be implemented at the IF stages rather than at audio stages. As we have explored the bandpass curves of the filters, you can also "involve" the notch. Turn the calibrator on and also notch. Play with various settings on the tuning dial and NOTCH knob. See what the range is, how much attenuation you are getting. This will be helpful in the contest when it gets tough. You will know that you can null-out that S8 carrier when it comes within your passband. The notch circuit can be also used to "tailor" one side of your passband curve.

In situations when we are trying to dig out that weak signal next to the splattering machine and all the filtering and notching tricks fail, it helps to turn the AGC off and use the manual RF gain control. Our ears can still discriminate between various tones and signals. With the AGC off we are preventing the receiver from being "closed" by the stronger signal (through AGC) and therefore the weak signal is getting through and our ears can take care of it. Audio filtering is also helpful at this stage.

Hint for the contester: when the radio is operated for longer period of time it is beneficial to keep changing the bandpass response from time to time. Our ear and brain combination has its own AGC and you will notice that after a while we start losing sensitivity (we keep turning that audio volume up). Also the frequency response of the ear changes. If we change it a bit from time to time, we keep using different parts of the spectrum. Quite often I find that the weak one I can't read becomes readable if I shift the filtering. This also might better adapt my audio frequency response to his and make that "weakie" intelligible.

I also use the audio filter (Datong) which is capable of tuning the low and high side of the bandpass independently. At times I even throw in the fixed, passive toroid filter.

What are the other possible improvements we could use? A better filter at the first IF would improve things further. I understand someone has the experimental set for 44.93 MHz IF. (Who is it? I'd like to try it.) Also cascading the filters (putting another set in series with existing ones) helps to make the skirts steeper. Putting another filter at the end of the IF chain, just before the detector also helps. This improves the skirt and reduces the noise produced by the IF amplifiers and helps with weak signal reception. Mechanical filters have better properties than most of the crystal filters. More demanding operators might try to use a set of Collins mechanical filters for the 455 kHz IF or even for the 4th IF 100 kHz.

In heavy populated areas (Tokyo) with strong signals from your neighbors, you might resort to putting filters right at your antenna terminals. Then of course the filter has to be made for the specific frequency and you need the set for "your" frequency. You can't change crystal filter's frequency. This is especially applicable on the lower bands, where signals are very strong when you use good antennas.

Binaural reception, using both ears (two IF and AF chains) in conjunction with our brain can further enhance QRM fighting arsenal.

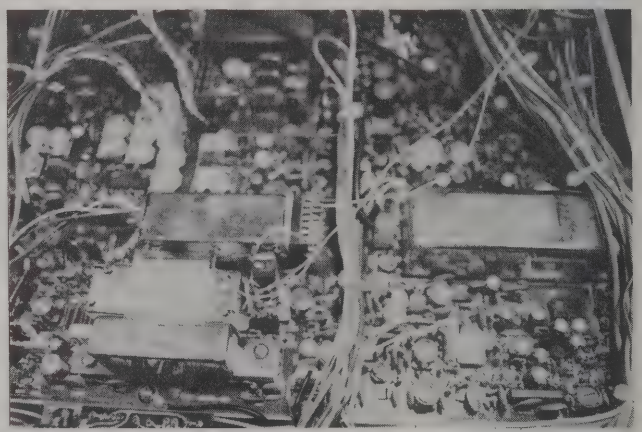
For those who want to preserve the "HI-FI" transmit audio, there is a way of having old TK filters wired for transmit and use FT filters for receive only, or have a switch to turn the TK filters off if needed. Some say that some signal leakage is introduced and it deteriorates the FT filter performance. Another question is what is better, to have narrow transmit audio (concentrate power into narrower bandwidth) or have better sounding and wider audio. I have found that in the contest others tend to get closer to my frequency and I don't bother them, while their wider audio bothers me. (In the next contest only narrow signals next to my frequency please!)

Things are getting tougher in the contests and antennas are becoming a very important QRM fighting tool. There are very interesting things that can be done with antennas used as a notch, but that's another subject.

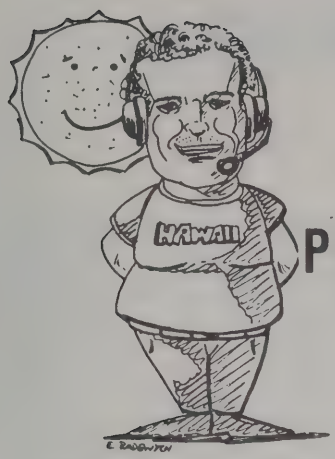
Is it all worthwhile? If you are serious contester, definitely! Let's start with our signal and keep it as clean and intelligible as possible. There is no filtering at the other end that can fix rotten signal. Know your passband and use it, you will find it much easier to get through the pileups and QRM.

Now I am just waiting for the new TS-940S so I can get going on it. Probably lot of contesters will appreciate the new features of 940 and this should release some 930's to the used rig market. Both are an excellent value for the money, and with some of the enhancements they will become even better. I will probably try to implement some other bells and whistles on the '940.

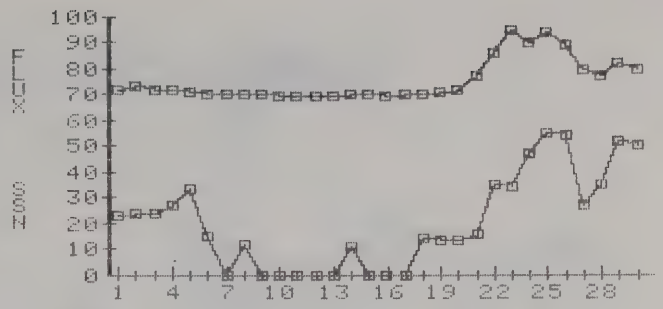
Good luck with modifications and enjoy all the knobs. In the upcoming issue we will look at the CW filtering. (VE3BMV)

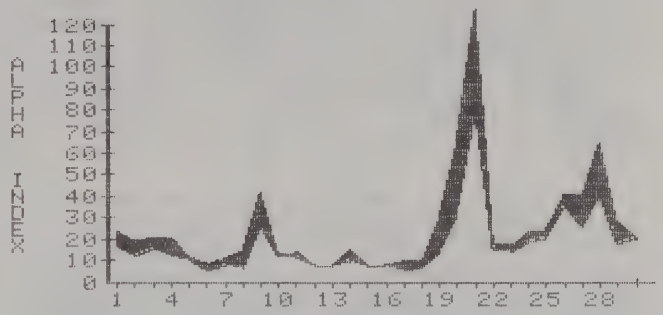


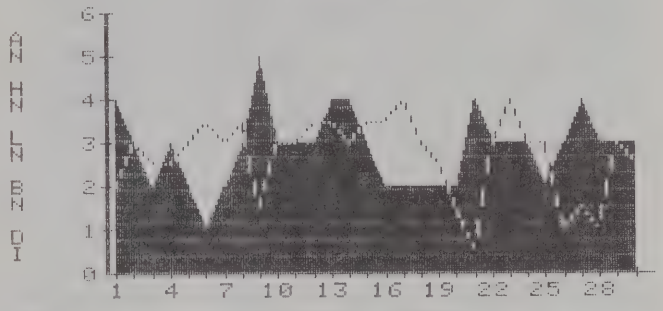
The above photo shows the crowded IF portion of the TS-930S circuit board with all filters installed. The 3rd IF CW filter is mounted in the corner of the cabinet and connected with small coax cables. Note the extra shielding and short leads going to the filters to minimize the leakage around the filters and pickup of oscillator signals. Small DIP relays are used to switch the 2nd IF CW filter in and out. I wish there was more room around the filters so one can just solder or plug in the better and bigger filters right into the circuit, without all the tape and solder tricks. Also installed is the AM filter.



KH6BZF PROPAGATION REPORT







Statistical information is compiled by KH6BZF and processed on a computer by VE3BMV.

The first diagram shows the value of solar flux (top curve) and SSN - sunspot number (bottom curve). The X axis and scale is the same for both. The Y - axis is calibrated in days of the month.

The second diagram shows variation of the Alpha Index for each day. The dark shaded area shows increases, while the white area shows decreases in the value of the Alpha Index for each day.

The third diagram shows the value of the K Index (shaded area) on a scale from 0 to 6. The dotted line represents the propagation quality where the scale is: from 5 = Above Normal to 1 = Disturbed.

FORECAST:

BEST HF CONDX: JUN: 02-10, 25-30, JUL: 01-08
BEST VHF CONDX: JUN: 12-16, 19-23, JUL: 09-13

APRIL 1985

APR '85	CONDX	SOL FLUX	LEVEL	SSN#	GEOMAGNETIC LEVEL	ALPHA INDEX	K INDX	NOTES
01	BN	072	VY LOW	023	UNSETTLED-ACTIVE	17/24	#K=4	RGN 4637(2) 4640(1)
02	LN	073	VY LOW	024	UNSETTLED-ACTIVE	12/19	K=3	RGN 4637(2) 4642(2)
03	LN-BN	072	VY LOW	024	UNSETTLED-ACTIVE	16/21	K=2	RGN 4637(2) 4642(2)
04	LN-BN	072	VY LOW	027	UNSETTLED-ACTIVE	12/21	K=3	RGN 4642(5) 4643(2)
05	LN	071	VY LOW	033	UNSETTLED	10/11	K=2	RGN 4642(6) 4643(7)
06	HN-LN	070	VY LOW	015	QUIET-UNSETTLED	05/08	K=1	RGN 4642(5)
07	LN	070	VY LOW	000	QUIET-UNSETTLED	08/11	K=2	BEST H.F. DX DAY...
08	HN-LN	070	VY LOW	012	QUIET-UNSETTLED	06/15	K=3	RGN 644(2)
09	BN-DIS	070	VY LOW	000	ACTIVE-M.S.LEVELS	25/42	K=5	STORM IN PROGRES some AURORA NOTED
10	LN	069	VY LOW	000	M.S.-UNSETTLED	12/13	K=3	NO SUNSPOTS
11	LN	069	VY LOW	000	UNSETTLED-ACTIVE M.S.	14/11	K=3	PERIOD OF STORMINES 0000-03000 UTC
12	LN-HN	069	VY LOW	000	UNSETTLED-QUIET	07/07	K=3	NO SUNSPOTS
13	LN-HN	069	VY LOW	000	UNSETTLED-QUIET	08/08	K=4	NO SUNSPOTS
14	LN	070	VY LOW	011	UNSETTLED-ACTIVE	10/15	K=4	RGN 46xx(1)not numbered
15	LN-HN	070	VY LOW	000	UNSETTLED	07/07	K=3	NO SUNSPOTS
16	LN-HN	069	VY LOW	000	UNSETTLED	08/08	K=2	NO SUNSPOTS
17	HN	070	VY LOW	000	QUIET-UNSETTLED	05/10	K=2	NO SUNSPOTS
18	LN	070	VY LOW	014	QUIET-UNSETTLED	07/09	K=2	RGN 4646(4)
19	LN-BN	071	VY LOW	013	QUIET-ACTIVE	14/29	K=2	RGN 4646(3)
20	BN-DIS	072	VY LOW	013	ACTIVE-MAJOR STORM	30/63	K=2	RGN 4646(3) AUR REP. M.S. BEGAN @ 19/1930
21	HV DIS	077	VY LOW	016	MAJOR STORMINESS	80/127	K=4	RGN 4647(6) AURORA REPORTED
							K=6 @ 20/2100-21/000	K=8 @ 21/0000-03000, K=5 @ 03-0600,09-180
22	LN	086	VYLO-MOD	035	ACT-UNSET-QUIET	15/18	K=3	RGN 4647(15)
23	HN	095	LOW-MOD	034	UNSETTLED	14/17	K=3	RGN 4647(24)
24	LN	090	MOD-VYHI	047	UNSETTLED-ACTIVE	19/24	K=3	MAJOR PROTON FLARE, x1/3B @ 24/0848 UTC
								SATELLITE PROTON EVENT BEGAN @ 24/1430 UTC, RGN 4647 (37)
25	LN	094	MOD-VYLO	055	ACTIVE	21/24	K=2	SAT PROT EVNT in PROG, FLARES RGN 4547(45)
26	DIS	089	VY LOW	054	ACT-UNSET-M.S. LEVELS	35/41	K=3	RGN 4647 (31) RGN 4648 K=5 @ 0000-1200
27	BN-DIS	080	VY LOW	027	UNSETTLED-ACTIVE	25/40	K=4	K=5 @ 0300-1200, MINOR STROM
28	DIS	077	VY LOW	035	ACTIVE-M.S. LEVELS	41/65	K=3	K=6 @ 03-0600 & 0900-1200 M.S.RGN 4647(25)
29	LN	082	VY LOW	052	UNSETTLED-ACTIVE M.S.	18/27	K=3	RGN 4647(31) 4649(1)
30	LN-BN	080	VY LOW		ACTIVE-MINOR STORM	21/--	K=3	SID @ 30/0911 STORMY

LONG-DELAYED ECHOES

Chuck Clark, K4ZN

The daily press reported in February that some scientists believe that the particles causing the aurora to radiate are from a point about a half million miles from the earth, in a direction opposite to that of the sun. This reminded me of something I had published in QST in November, 1971, on long-delayed echoes, one of the mysteries of radio propagation that has produced much speculation but relatively little in the way of solid solution.

Reports continue to be received about occasionally hearing an echo of a radio signal several seconds after the original signal. It happens infrequently, but the number of reports since the 1920s is large enough to indicate that something is happening. But, like ball lightning, it is too rare for investigators to be able to determine what is really happening. Some have proposed electron clouds in space, propagation delay in the ionosphere, several trips around the world, storage and later stimulation. But nobody has come up with a generally-accepted explanation. In fact it is not impossible that there may be more than one mechanism at work here.

In the 1971 article I analyzed 82 such reports and found that there were peaks in the number of echoes reported with delays of 2.5 and 8 seconds. The 2.5 second delay is about right for a reflection from the moon. More about the eight second delay later.

One difficulty with ascribing the 2.5 second delay to reflection from the moon is that for most of the echoes the moon was below the horizon at the reporting station. In fact, the reflections seemed to cluster about 50 degrees below the horizon, if one assumed that the moon was the reflector. I suggested that perhaps the ionosphere accounted for causing the signal to get through. But now I think I have a better explanation, which will follow.

As for the eight second delays, I suggested that a cloud of ionized gas, very tenuous, would be likely to inhabit a region about 800,000 miles or so from the earth in a direction opposite to that of the sun. Astronomers tell us that there are five points in a planet's orbit where a body could remain indefinitely, called the Lagrangian points, designated L1 through L5. L1 is between the sun and the planet, where the planet's gravitational pull offsets that of the sun enough that the body will make the smaller orbit in the same length of time as the planet makes its own. L2 is opposite the sun, where the planet's and the sun's gravitational pull add, and so the body has to move faster to remain in orbit and as a result makes its larger orbit in the same length of time as the planet makes its own. L3 is at the same distance from the sun as the planet, but in the opposite direction. L4 and L5 are 60 degrees ahead of and behind the planet in its orbit. See Figure 1. L1, L2, and L3 are unstable: if the body there doesn't have exactly the right velocity to remain in its orbit, it will drift away, and as it drifts it will be affected by forces that accelerate the drift. L4 and L5 are stable: if the body's velocity is not exactly correct, the body will oscillate around the point but will remain in the vicinity. Collections of asteroids have been discovered at points L4 and L5 of the planet Jupiter, the Trojan asteroids. In the case of the earth, however, any accumulation at these points would be unlikely due to the disturbing influence of Jupiter. At that distance form the earth, Jupiter's gravitational pull would be twelve times that of the earth.

Point L2 is the likely candidate for the eight-second reflections. While it is not stable, and in addition is disturbed by the moon's gravitational pull, it is quite likely that there would be concentration of matter there, gases driven out from the earth's atmosphere by the solar wind, for example. Actually, on clear, dark nights (if they still exist) a faint glow can be seen, about ten degrees in diameter, directly opposite the sun, called the gegenschein, caused by dust particles near point L2.

The moon also has Lagrangian points in its orbit, and they are designated M1 through M5 in Figure 1. In the previous article I suggested the ionosphere as a reflector to make it possible for the long-delayed echoes to reach a station for which the moon was below the horizon. But now I believe a better explanation could be found in Lagrangian points M4 and M5, one of which would be about 10 degrees above the horizon when the moon is 50 degrees below. A tenuous concentration of gases could develop here, and if ionized, would serve as a reflector.

Whether the concentration is at L2 of the earth's orbit or at M4 or M5 of the moon's, it would differ considerably from the ionosphere. In the latter we are dealing with a layer only a few miles thick, while these concentrations could be thousands of miles in diameter, with density increasing toward the center, but nowhere as

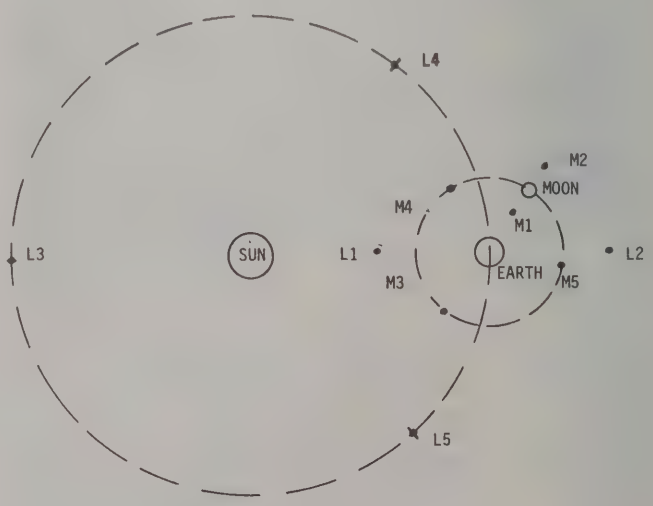


Figure 1. The Lagrangian points of the orbits of the earth and the moon. Not to scale.

concentrated as the atmosphere is 150 miles above the earth. Being in constant sunlight, these gases would be highly ionized. A radio wave coming from the earth would be retarded as it entered the ionized gases, its velocity at any point being given as

$$v = c \sqrt{1 - 80.5\ N/f^2}$$

where N is the number of free electrons per cubic centimeter, f is the frequency in kilohertz, and v and c are the velocity of propagation of the radio waves in the medium and in a vacuum respectively. So, when the wave penetrated to a depth where there were $f^2/80.5$ free electrons per cubic centimeter, its velocity would be zero, and the wave would be reflected. Because the wave might travel several hundred miles through a medium of gradually increasing density, it could be significantly delayed, and the echo would then be delayed longer than would be expected if one looked merely at the distance traversed. This could account for the occasional reports of delays of up to thirty seconds.

This is presented not as an answer, but as a suggestion as to where the answer might be found. Professional scientists and engineers tend generally to devote their attention to fields that are tried and proven. After all, they have to earn their living. If long-delayed echoes are going to be investigated, it will more likely be done by amateurs, just as HF was in the 1920s when amateurs didn't know what the engineering world already knew, the frequencies were no good for serious communication. Now there aren't enough of them.

(K4ZN)

PROPAGATION NOTES

Lee Wical, KH6BZF

Latest NASA Long Range Solar Activity Modeling indicates that the bottom of this Solar Cycle is still centered around December 1987/January 1988.

A positive leap second will be inserted in the WWV, WWVH and WWVB time code broadcast on June 30, 1985 23 hrs 59 mins 60 sec UTC and July 1, 0 hrs 0 min 0 sec UTC, or UTC/GMT retard by one second, tune in and listen.

The Solar Index Data Centre (SIDC) Observatoire Royal de Belgique, Bruxelles, Belgium will report the Mean Provisional (10.7 cm) Solar Flux Index (average) for April '85 = 75.16 as compared to March '85 = 73.3, Feb. = 73.7, Jan. = 74.5, Dec. '84 = 75.9, Nov. = 76.3, Oct. = 73.5, Sep. = 78.1, Aug. = 83.7, July = 89.3, June = 100.3, May = 128.3 and Apr. '84 = 128.7

ASTRONOMICAL PHENOMENA FOR JUNE 1985

DATE	UTC	PHENOMENA
01	1300	MOON AT PERIGEE
08-12		METEOR SHOWER
27-29		METEOR SHOWER
02		TRINITY SUNDAY
03	0400	FULL MOON
10	0800	MOON'S LAST QUARTER
13	1400	MOON AT APOGEE
18	1200	NEW MOON
21	1040	SUN AT SUMMER SOLSTICE
29	0900	MOON AT PERIGEE

"OKAY ON GOING FROM NOVICE TO EXTRA IN SIX MONTHS, DAISEY. 'THREES AND EIGHTS' TO YOU TOO!"

The 110 foot BIG BERTHA going up at VE3BMV's 46 foot wide lot. That's 'BMV himself joining the two pieces with the help of a crane. Watch for the upcoming story on "Flying Bertha". It is a real beauty, self supporting, rotatable tower with plenty of room for all kinds of antennas. It sure helped to collect most of the Canadian monoband records in CQ Contests.

CONTEST RULES

FRANK ANZALONE, W1WY
CQ Magazine

Calendar of Events

May	25-26	CQ WW WPX CW Contest
May	25-29	CLARA AC/DC "Mystery"
June	1	ARCI QRP "Hootowl" Sprint
June	1-2	New York State QSO Party
June	1-2	RSGB National Field Day
June	8-9	So. American CW Contest
June	8-10	VK/ZL RTTY Contest
June	8-10	ARRL VHF QSO Party
June	15-16	All Asian Phone Contest
June	15-16	NINE Land QSO Party
June	22-23	ARRL Field Day
June	29-30	SMIRK QSO Party
July	13-14	IARU Radiosport Chmpship.
July	13-14	West Coast 160 SSB Contest
July	13-14	Colombian DX Contest
July	20-22	CQ WW VHF Contest
July	27-29	County Hunters CW Contest
Aug.	3-4	Wild Bunch 160 SSB Contest
Aug.	3-4	ARRL UHF Contest
Aug.	10-11	European CW Contest
Aug.	17-18	SARTG RTTY Contest
Aug.	24-25	All Asian CW Contest
Aug.	24-25	GARTG RTTY Contest
Sep.	9-15	QCWA Invitational Party
Sep.	14-15	European Phone Contest
Oct.	26-27	CQ WW DX Phone Contest
Nov.	23-24	CQ WW DX CW Contest

ARCI QRP "Hootowl" Sprint

0200Z to 0800Z Saturday, June 1

This is a shorty (only 6 hours) on CW organized by the QRP ARCI.

Exchange: RST, state, province, or country. ARCI members will include their membership number; non-members their power output.

Scoring: Contacts with members 5 points; non-members 2 points if in the same continent, 4 points if in a different continent.

Multiplier: If your power output is:

4 to 5 watts × 2
3 to 4 watts × 4
2 to 3 watts × 6
1 to 2 watts × 8
Less than 1 watt × 10
Over 5 watts as a check log only.

Bonus: Use of natural power (solar, wind, hydroelectric, etc.) with or without storage, × 2. (With storage, cells must be charged by natural power source for at least 8 of the 48 hours preceding the contest. Battery power × 1.5.

Final Score: Total QSO points × state/province/country multiplier × power multiplier × bonus if any.

The same station may be worked on each band for QSO and multiplier credit.

Frequencies: 1810, 3560, 7040, 14060, 21060, 28060. Novice and Tech.—3710, 7110, 21110, 28110.

Awards: Certificates to the highest scorers in each state, province, and country, and second and third place awards in areas with 10 or more entries.

Use a separate log sheet for each band. It is recommended that official ARCI forms are used. A large SASE to KA5NLY will get you a supply.

Logs must be received by July 1st by the QRP ARCI Contest Chairman, Gene Smith, KA5NLY, P.O. Box 55010, Little Rock, AR 72225. Include a large SASE if you wish the results.

RSGB National Field Day

1600 to 1600Z Sat.–Sun., June 1–2

Activity for this c.w.-only Field Day is concentrated on the British Isles. Operation is from portable locations specifically set up for Field Day operation. (You may also hear some activity from other Europeans.) Although overseas stations are not directly eligible to participate, they are invited to work Field Day stations and submit a report of the stations contacted.

A certificate will be awarded to the overseas station in each continent whose check log shows the most points contributed to competitors.

Send logs to: RSGB HF Contests Committee, c/o Mr. D.J. Lawley, 220 Shipbourne Road, Tonbridge, Kent TN10 3EL. England.

ARRL VHF QSO Party

1800–0300Z Sat.–Mon., June 8–10

Action will be found on the 50, 144, 220, and 420 MHz bands, and even higher up in the spectrum.

The scoring varies with the different bands used, and there are certain requirements and restrictions in the rules. Working WAS on 6 meters is a possibility.

Complete rules will be found in the May issue of *QST*.

I strongly recommend that you write to ARRL Headquarters for official forms. Include an s.a.s.e. with your request to: ARRL VHF Contest, 225 Main St., Newington, CT 06111.

South American CW Contest

1500Z Sat. to 1500Z Sun., June 8–9

Sponsored by *Electronica Popular* magazine of Brazil, and supervised by the Grupo Argentino de CW of Buenos Aires, this is an annual affair the second weekend of June.

It's still a CW contest only, but the format and scoring have been changed. Now you can work stations in other continents as well as South Americans. Use all 6 bands, 1.8 through 28 MHz.

Classes: Single operator both single and all band, multi-operator, single transmitter, all band only and SWL.

Exchange: RST plus a QSO number starting with 001.

Points: Contacts with stations in own country zero points but okay for multiplier credit. Other countries but same continent, 2 points. Countries in other continents, 4 points. Contacts with South American stations, 8 points. (For stations outside of S.A.)

Multiplier: Different countries (DXCC list) plus the different South American prefixes worked on each band.

Final Score: Total QSO points times the sum total multiplier from each band.

Awards: Certificates to the top-scoring station in each country and the three top scorers in each class.

Use a separate log sheet for each band and a summary sheet showing the scoring and other essential information.

Logs must be received no later than August 31st and go to: WWSA Contest Committee, P.O. Box 18003, 20772 Rio de Janeiro, RJ, Brasil.

VK/ZL RTTY DX Contest

0000Z Sat. to 0000Z Mon., June 8–10

The Australian National ARTS is again conducting the contest this year. Rules are more or less the same as last year with a rather elaborate scoring system.

All five bands may be used, 3.5 to 28 MHz in that portion of the band used by RTTY (no 10.1 MHz).

Classes: Single operator, multi-operator, and SWL.

Exchange: RST, zone, and time in UTC.

Scoring: QSO points are determined as per the CARTG Zone chart. Multiply total by the number of countries and again by the number of continents worked (maximum of 6). After above calculations, add 100 points for each VK/ZL worked on 14 MHz, 200 points if on 21 MHz, and 300 points if on 28 MHz. (Example: 720 points from zone chart × 29 countries × 5 continents = 104,400 points, plus 6 VK/ZL worked on 14 MHz gives a final score of 105,000 points.)

A station may be contacted only once on each band, but again on another band for a multiplier. The ARRL country list is used as a standard. In addition each VK, ZL, JA, VE/VO, and W/K call area will be considered a separate multiplier. (We are unable to include the CARTG zone chart due to lack of space. Include 2 IRC's for a copy from VK2EG.)

Use a separate log sheet for each band and column them in this order: date, time (UTC), station worked, message sent and received, and points claimed.

A summary sheet showing the scoring, name, and address in Block Letters and signature of each operator is also required.

Awards: Will be issued to first-, second-, and third-place winners on a world basis and also on a country basis.

All entries must be received no later than September 1st and go to: W.J. Storer, VK2EG, 55 Prince Charles Road, Frenchs Forest N.S.W., 2086 Australia.

NINE Land C.W. Contest

1700Z Sat. to 1700Z Sun., June 15–16

This is the third annual contest organized by the Joliet ARS in which there is no limit to whom you can work; however, contact with NINE Land stations (Ill., Ind., and Wisc.) have double QSO point value. Only one contact per band with the same station permitted.

Classes: Single and multi-operator, one transmitter and portable field operation, multi-operator maximum of two transmitters.

Exchange: Consecutive QSO numbers beginning with 001, and state, VE province, or DX country.

Scoring: Contacts with NINE Land stations count 2 points; with all other stations 1 point.

Multiplier: Number of states, VE provinces, and DX countries worked (counted once only). There is a bonus multiplier of 1 for each 20 NINE Land stations worked.

Final Score: Total QSO points from all bands times the number of states, provinces, DX countries, and bonus points worked.

Frequencies: 1805 and 60 kHz up from lower edge of 10 through 80 meters (no 30 meters). Novice: 25 kHz up from low edge of their bands.

Awards: Certificates to high scorers in each class in each state, VE province, and DX country. Plaques to high scorer in NINE Land and outside NINE Land, and multi-operator.

Dupe sheets are required for entries with over 200 contacts, and a summary sheet showing the scoring, etc. Include a large s.a.s.e. for a copy of the results.

Mailing deadline is July 21st to: Joliet ARS, Att.: Paula Franke, WB9TBU, P.O. Box 873, Beecher, IL 60401.

All Asian DX Contest

Phone: June 15–16 C.W.: Aug. 24–25
0000Z Sat. to 2400Z Sun.

This is the 25th year of this activity sponsored by the JARL. The exchange is between Asian countries and the rest of the world.

Classifications: Single operator, both single and all band. Multi-operator, both single and multi-transmitter, all band only (one signal per band only).

Club stations are classified as multi-operator and each operator will give his age in the exchange.

Exchange: For OM's—RS(T) plus age of operator. For YL's—RS(T) and 00.

Scoring: 3 points for contacts on 160; 2 points for contacts on 80; 1 point on all other bands. (KA contacts do not count.)

Multiplier: For Asians the multiplier is determined by the number of different countries worked on each band (DXCC list). For non-Asians it is determined by the number of different Asian prefixes worked on each band (*CQ* WPX list).

Final Score: Total QSO points from all bands times the sum of the multiplier from each band.

Keep in mind that non-Asians use Asian prefixes as their multiplier, not countries.

Note: JD1 stations on Ogasawara (Bonin and Volcano) are in Asia, and JD1 stations on Minamitori Shima (Marcus) are in Oceania.

Awards: Certificates to the top scorers, both phone and c.w., in each country and each U.S. call area. In each class, both single band and all band, up to the fifth rank, depending on the number of returns. Medals to the all-band continental leaders, both single and multi-operator.

Logs: Keep all times in GMT. Use a separate column for the country or prefix multiplier, and fill in only the first time it is worked. Use a separate log for each band. Include a summary sheet showing the scoring and other information, and a signed declaration that all rules and regulations have been observed.

There is a strict disqualification clause for taking credit for duplicate contacts in excess of 2% of the total on each band, as well as other infractions.

Logs must be received no later than Sept. 30th for the Phone section, and Nov. 30th for the C.W. section. They go to: JARL Contest Committee, P.O. Box 377, Tokyo Central, Japan.

Asian Country List: A4; A5; A6; A7; A9; AP; BV; BY; CR9; EP; HL/HM; HS; HZ/7Z; JA-JR; JD1; JT; JY; OD; S2, TA; UA/UK/UV/UW9-0; UD6; UK6C, D, K; UF6/UK6F, O, Q, V; UG/UK6G; UH8/UK8H; UI8/UK8A, G, I, L, O, T, Z; UJ8/UK8J, R; UL7/UK7; UM8/UK8M, N; VS6; VS9M/8Q; VU; VU (Andaman & Nicobar); VU (Laccadive); XU; XV/3W; XW; XZ; YA; YI; YK; ZC4/5B4; IS (Spratly); 4S; 4W; 4X/4Z; 70 (S. Yemen); 70 (Kamaran); 8Z4; 9K; 9M2; 9N; 9V; (Abu Ail).

ARRL Field Day

1800–2100Z Sat.–Sun., June 22–23

Without a doubt, this activity generates more stateside participation in manpower than any other amateur radio activity. It is mostly a club-organized activity, and therefore requires that the coordinator be knowledgeable about what is required.

Entries are separated into many classes. Rules and requirements are quite extensive and will be found in the May issue of *QST*. It is advisable that you read them thoroughly.

Official log forms are a must. Direct your request with a large s.a.s.e. to the ARRL, ARRL Field Day, 225 Main St., Newington, CT 06111.

Six Meter QSO Party

0000Z Sat. to 2400Z Sun., June 29–30

This is the 11th annual QSO party sponsored by the Six Meter International Radio Klub. The party is open to all, members and non-members, but it seems to be geared for membership participation.

Cross-band contacts are not permitted, and competition is for single-operator stations only. Operation, of course, is confined to the 6 meter band.

Exchange: SMIRK number, ARRL section, VE province, or country. (ARRL U.S. only; KH6 and KL7 count as countries; VE use provinces.)

Scoring: Contacts with members count 2 points, with non-members 1 point. Multiply total QSO points by the number of ARRL sections, VE provinces, and foreign countries worked.

Awards: Certificates to the top-scoring stations in each ARRL section, VE prov-

ince, and country. There are two SMIRK certificates for the overall winners in the U.S./Canada and foreign areas.

Since the party is geared for membership participation and requires the use of official log forms, it is suggested that you write for more details. Include a large s.a.s.e. with your request.

Mailing deadline for entries is July 31st to: Mark S. Anderson, WB5NPK, 8932 Saddle Trail, San Antonio, TX 78255.

1984 WAEDC Phone Results
North America

U.S.A.		Canada	
W2YV	990,095	VO1AW	36,816
	(Opr. KQ2M)	VE1CBF	20,111
N2VW	195,936	VO1CA	11,155
N4UH	131,028	VE4RP	10,416
K4YKZ	115,522	VE3ST	60
N1AU	76,858	**Dom. Rep.**	
WI4K	61,920	HI8LC	34,500
N4BS	47,628		
WC4E	46,184		
WA8DCQ	38,906	**Multi-Opr. U.S.A.**	
KC8XK	37,440		
W3ARK	33,304	K6OKW	181,176
W6BH	31,040	K1XM	6,132
KV9S	25,440	**Continental Winners**	
WK4F	24,182	Europe	Y23EK
K6EID	18,670	Africa	EA9KF
N6AW	17,476	Asia	UF6CR
KB8C/9	14,175	No. Amer.	W2YV
W2GKZ	13,608	So. Amer.	PY5EG
N5JB	8,316	Oceania	VK3EZ
KQ1F	6,794		
W4UW	6,272	**Multi-Opr.**	
KC1F	4,641	Europe	LZ4OKTS
KU7Z	4,536	Africa	ZS6TUK
W5FO	3,434	Asia	RF0FWW
KA1DSQ	2,688	No. Amer.	K6OKW
K7LXC	2,688	So. Amer.	YV1AVO
W0KEA	2,686		
W5EIJ	1,368	**Special Award**	
KT1O	1,326	PY5EG and DJ9KH	
WA5IYX	900		
K2KTT	828	** Boldface indicates*	
WA1TBV	132	*winners.*	

A reminder: the mailing deadline for logs for our recent WPX CW Contest is July 10th, and this year all logs go to CQ Magazine, 76 N. Broadway, Hicksville, NY 11801. Be sure to indicate CW on the envelope.

Deadline for material for the September issue is June 15th, and July 15th for the October issue. You gain a week advantage if you send it to my home address.

Have you checked the expiration date of your license lately?

73 for this time, Frank, W1WY

(Just as we were going to press, Bernie Welch, W8IMZ, and Steve Bolia, N8BJQ/6, our WPX Contest Director, reported that the WPX SSB Contest had a very successful weekend, and they predict that many of the existing records will be broken, except on 10 meters, which was almost a complete blackout.)

Dear Yuri,

Congrats on a very FB effort. Your publication is superb! Keep it up!

Good luck! 73, Joe Reisert, W1JR

Dear Yuri

Your W2PV articles from what must have been a tape are priceless. I visited Jim on two occasions spending a night there about a year before he passed away. Your magazine is super!

Rush Drake, W7RM

Dear Yuri,

I can't say enough about your magazine (all good). Finally, someone has brought out a high performance publication for performance minded amateurs. Keep up the good job.

73 Bill Wall, KC4UZ

Dear Yuri,

I am QSL manager for ARRL 7th Call Area Bureau. I would appreciate it if you could alert world QSL Bureaus not to include Alaska's QSLs in our Bureau mailings. Prefixes are AL7, KL7, NL7 and WL7.

Also, such calls as A7 or A71 or Netherlands SWL's using calls beginning with NL7 and a string of digits and prefixes KA7 with 2 letter suffixes are not hand led by us. The first is Qatar, the last belong to American service personnel in Japan.

Also, these prefixes AH7, KH7, NH7 and WH7 are Kure Island and not related to our Bureau.

73 James Boland, W7GUR

(You asked for those single letter calls and new prefixes, and now you "pay" for it. Hi. Perhaps letters to all those offending bureaus would be the most effective way to get the message. de Yuri)

Dear Yuri,

I don't think it should be all that hard to figure out why we Americans don't get really excited about the WPX contest. Thanks to our wonderful FCC, there must by now be at least a thousand prefixes in the states - all of which we'd need to work for multiplier credit at zero pointers. I always feel like a bit of a jerk filling up someone else's log on the same terms.

As for the owners of ever increasing scores and new records, this strikes me like deciding to become a millionaire by moving to Argentina.

Now let me ask a reverse question: why are there so few Canadians in the North American Sprint? This is also a neat little contest. With a little preplanning one can do it without a single potty break, and the QSY rule interjects an element of skill above the level of sitting on one frequency with a big signal. But nevertheless, I think it's been 4 or 5 contests since I've worked Ontario. I don't ever remember working more than three provinces in the same contest.

I'll still turn on the radio for WPX and pass out a few points and maybe a few no-points too. But, don't ever expect to find me knocking myself out in a WPX, unless I was to find myself in some exotic location. Meanwhile, can you folks up north turn on your radios twice a year for the North American Sprint?

73, Jim Stahl, K8MR

Dear Jim,

Thank you for your comments. Yes, I can symphatize with you on trying to work zero pointers for multipliers. Perhaps it is time to add own countries' contacts to the scoring system, even one point would help. The way WPX and WW contests are structured, people from highly populated countries are penalized by not being allowed to work their own countrymen for points credit. Back in the old days this was perhaps justified to promote DX contacts. In my opinion we should be allowed to work anyone in the contest, including our own countrymen. Is it time to propose a change in the rules? I'm all for it!

IRSA and RADIOSPORTING are planning to sponsor monoband contests which will have our own countries' QSOs included.

Yes, the FCC and the people who asked for opening the "prefix can of worms" made it very interesting in the WPX situation. It is one of those things that can significantly change the "balance of power" for certain areas. This of course keeps adding to the prefix count in the WPX. Your "loss", is the rest of the worlds' gain.

On the other hand, things are not so bad - AI7B still holds the NA record on 15 m SSB.

As for Canadians in the NCJ Sprint, speaking for myself, I usually have a single band antenna system on my tower

and presently I'm not ready for more than the single band contests. In the last few years I fond time to operate only the biggies - CQ WW and WPX. Maybe others perceive the NCJ sprint as a "national" US contest, maybe it's the QSY rule, maybe "team" competition is the rule. I don't know.

We will try to promote NCJ and wake up some Canadians. In return, perhaps NCJ would help to publicize the CAN-AM (every time we sent the rules/results, they never made it into the NCJ.) Meanwhile, lets make a proposal to update the rules for CQ WW and WPX.

73, Yuri

Dear Yuri,

I think your magazine and articles therein are informative and interesting to read. I believe this sort of publication was needed by those of us who enjoy this aspect of amateur radio.

73 & DX, Kent Obenchain, WB9AMI

Dear Yuri,

Your March '85 CQ WPX Contest article jolted me into commenting. Probably by an oversight you missed a good example of a small station having the potential of coming out with a big score. You mentioned that a good antenna and a special prefix giving that station an advantage. Well in some cases I disagree. Take the case of station VP2MRA in the '83 SSB contest. The antenna system was a Cushcraft A3 tribander @ 30 feet - a good 10/15 M antenna, a 40-80 inverted Vee @ 30 feet. No plus points for the antenna system. The VP2 prefix was relatively common during the contest. See VP2EC's big multi op score, and competition station VP2MGQ who by the way was so discouraged that he failed to ever submit a score. Again no plus points for the prefix. How would you explain that this station with two minuses set a new North American single op all band record?

Doug Renwick, VE5RA, VP2MRA, 3D2DX

P.S. WA3EKL's Yagi design program article was actually written for the Atari - Bravo! How about a similar article on the IC 751 as you are doing on the TS 930?

Dear Doug,

I think the explanation is simple - A GOOD OPERATOR. If you had a better antenna system and a VP3 prefix, would you do worse? Many have found that a big mother antenna farm and plenty of kilowatts are not a guarantee for winning. A good operator with a modest station can always give a Goliath a run for his money. Operator skills are perhaps the most important factor in contesting. Hardware helps,too. If those weapons are in good hands, the results are spectacular. Your NA record becomes so much more valuable, because you set it with a modest station. Congratulations and we are proud of you!

We had a review of the IC-751 in our Nov. 84 issue. In the upcoming issues we will have some modifications and hints for the Icom series. 73, Yuri

Dear Yuri,

After listening to the pileup on the FOO DXpedition and becoming very angry and frustrated with the lids and policemen, I decided to write a letter in an attempt to exorcise the bad feelings for my fellow hams.

Rather than lamenting the sorry state of our DX chasing, I tried to see from another view point - why? Why do people bray out their call signs even though its apparent that the DX came back to someone else? Why do people jam and create chaos? It became apparent that many on the frequency were ignorant of how to work DX, i.e., CW pileups, split freq., zero beating, etc. Many were calling in frustration on not getting worked, thereby fostering "Liddism", and other repugnant acts. Heard braying their calls were old timers and newcomers. What can 20+ years of hamming and 2 months of hamming have in common? Most of us had "Elmers" to get us started but how many have had a "DX Elmer"? Granted, learning is done by osmosis, sitting and listening, but how about those "Tips" and "How To"?

What I propose is that the DXers and Contesters, who have learned the techniques, share these with others. How about at our hamfests and conventions? Why not schedule DX panels and forums on "How to get through"? Noted DXers and those who have been on the other end of pileups can offer tips, techniques, and generally tell how to work DX. DX Clubs can promote good operating practices (show guys how their rigs zero beat) and apply subtle peer pressure to poor operators. DX Club Libraries can include such books as "The Contest Cookbook" and "The Complete DXer".

I think that many of our fellow hams feel that "Big Gun" status is necessary to work DX. Not so! I worked the FOO gang on all bands, including 160, with a Butternut Vertical; I just used the techniques that I saw work when I was on Wake Island and down at VP2V land. It will make operating more fun for everyone if we share our expertise. It's up to us, those interested in our sport, to get the ball rolling and help others be successful too!

73, Tom Morton, KT6V, VP2VFL

Dear Tom,

I think that teaching good manners and how to operate are two very sore points in the present system. Manners,good or bad, is the result of our upbringing. I don't know if we can do much about that. Poor operating habits come from the lack of education and licensing requirements. As far as I know, most countries do not include questions about operating procedures or a sample of a QSO in their exams. During a licensing examination the proper operating procedures should be tested. How about an inclusion of questions on operating procedures for the new licensees as part of the exam?

The best education is listening, listening and more listening before one actually starts operating with a big signal. I spent two years as a SWL with a lousy receiver. That was the best operating education for me.

We are dedicated to promoting quality. Articles on this subject are appreciated.

There is quite a misconception that one has to have a big station to work DX or contests. It helps, but the key is skill, which can be acquired only by learning and practice. Otherwise, one looks like an alligator - no ears but a big mouth! Should NO/FOOL publicize the offender's calls?

Lets start the "Operating Academy" feature in our magazine. IRSA will offer assistance and speakers on operating techniques for local conventions and club meetings. We would like to hear from you, the experienced DX and contest tigers! 73, Yuri

Dear Yuri,

Thank you for the first copies of RADIOSPORTING. It was interesting to read the magazine and see what it was all about. Since my main interest in radio is DXing with a few contests now and than, I would very much like to join the IRSA, and to subscribe to the magazine.

First a few words about myself. I am 19 years old, and have been a LA since I was 16. I am educated as a Radio/TV/Video Serviceman. Just now I am in the army as a radio operator at one of the military stations here in Norway. For this reason I haven't been too active with my own callsign but, I have been working with different club calls'. Guess I have to wait and see how the situation will be in the next nine months. Much depends on whether I can take my HF transceiver with me or not.

The equipment here at home is a Kenwood TS530S, and a Yaesu FT102 which belong to my dad - LA3GAA. We have a 3 element tribander for 15, 20 and 10 m and several dipoles for 80, 40, 30, 20, 15 and 10 m. I am also active on 2 m and have one 11 element and one 7 element yagi. The rigs are: a FT480R, a FT290R, a FT203R plus a few linear amplifiers.

The activity on the HF bands these past three years have given me about 200 countries on SSB and about 120 on CW. The main problem is in getting the QSL cards. So far I received 125 cards for my DXCC, but I'll wait until I get the 100 on CW before I send my application for the award.

Tnx again for the complimentary issues. I look forward to getting the upcoming copies of RADIOSPORTING.

Best 73, Sigve Okland, LA1HCA

John Salyer, W3MA and John Shiappari, N6AUV haveing a ball at Stouffer's hospitality suite.

DXPO ATLANTA

SEPTEMBER 27 - 29, 1985
LANIER PLAZA

SOUTHEASTERN DX CLUB

FOR REGISTRATION INFORMATION CONTACT:
SOUTHEASTERN DX CLUB
720 STARLIGHT LANE NE
ATLANTA, GEORGIA 30342
USA

FCC NEWS

BILL GRENFELL, W4GF

A FORMER AMATEUR-LICENSED PERSON WHOSE LICENSE WAS SUSPENDED OR REVOKED HAS FORFEITED THE RIGHT TO OPERATE AN AMATEUR STATION, according to the Chief of FCC's Private Radio Bureau. In a letter to a former licensee he stated: "Section 97.79 (d) of the Amateur Rules allows a licensed amateur to 'participate' in amateur radio communication from his station. This rule exists to allow persons who are not licensed Amateur Radio operators to experience the benefits of this service and to stimulate their interest in Amateur Radio. Accordingly, it permits incidental communication by non-amateurs over amateur stations under certain very limited conditions. You, on the other hand, were formerly a licensed amateur who forfeited the right to operate an amateur station. Therefore, you are not in the class of persons intended to be exposed to Amateur Radio by virtue of Section 97.79 (d). Hence you are prohibited from communication over Amateur Radio under any and all circumstances." (ARRL letter 03/14/85). Comments on this Docket, PR 85-51, were due at FCC, Washington, D.C. 20554, on May 14, with reply comments due June 17, 1985. See last month's FCC NEWS for the text of the proposed amendment of rule Section 97.79(d) which would prohibit participation in Amateur Radio communications by revoked or suspended former amateur licensees.

FCC IS WAITING "WITH BATED BREATH" FOR A PROPOSAL FROM ARRL TO PROVIDE "ASSISTANCE" TO FCC IN THE ISSUANCE OF AMATEUR STATION CALL SIGNS, was the response I received from an FCC official to my question about such a possibility. He also said that the Private radio Bureau Chief, Robert S. Foosaner, has advised League officials that they would have to take over the entire process ("lock, stock and barrel" was the way my contact put it). I believe this means it is likely that receiving and processing a request, and issuing a desired amateur station callsign would have to be accomplished without any cost to the FCC. The Executive Committee of the ARRL Board of Directors recently voted to continue "the study of this issue."

FCC HAS PROPOSED TO INCREASE THE LEVEL OF LEAKAGE PERMITTED FROM CABLE TV SYSTEMS IN THE 54 - 216 MHz BAND FORM 20 TO 50 MICROVOLTS PER METER (measured 3 meters from the leak). This would be accomplished by deleting present Cable Television Rule Sections 76.601, 716.605 and 76.609 and substituting a new Section 76.601 with the new limit(s). In the Notice of Proposed Rule Making, the Commission states that the relaxation is "...subject to the condition that actual cases of interference must be promptly and effectively eliminated, regardless of the leakage levels found in accordance with Section 76.613. Accordingly, any interference complaint arising from normal usage must be resolved even if the signal leakage is below the level allowed by the table. Comments are requested on the appropriateness of the proposed values." Comments were due by March 29 and reply comments by April 15, 1985. The ARRL comment opposed any relaxation of the leakage restrictions.

FCC'S PR DOCKET 85-21 PROPOSAL TO DELETE THE CURRENT 30 DAY WAIT REQUIRED BEFORE RE-TAKING AN EXAMINATION AFTER FAILURE WAS COUNTERED BY ARRL'S COMMENT WHICH REQUESTED A DIFFERENT APPROACH. The League asked the Commission "...to require a 27 day waiting period after failure, and to require advance public notice of every examination opportunity in the interest of preserving the integrity of the VE program." (ARRL Letter, 03/85). In addition to leaving the waiting period to the discretion of the VEC, FCC proposed to require public notice of examination opportunities only for those sessions which would serve five or more applicants.

A 45 DAY EXTENSION OF TIME FOR COMMENT ON FCC'S PR DOCKET 85-22 NOTICE OF PROPOSED RULE MAKING (NPRM) REGARDING RESOLUTION OF INTERFERENCE BETWEEN REPEATERS HAS BEEN REQUESTED BY THE ARRL.
The NPRM proposes to require resolution procedures, such as: "Where one repeater is coordinated and the other is not the station with the non-coordinated repeater has primary responsibility to resolve the interference." See last month's FCC NEWS for more details. The NPRM specified July 1, for original and September 30, 10985 for reply comment limits. An FCC official advised me that the League's request would likely be granted (probably move the original comment deadline to August 15, etc.).

THE PR DOCKET 85-23 NPRM TO IMPLEMENT WARC '79 AMATEUR ALLOCATIONS HAS RECEIVED A MIXTURE OF APPROVAL AND OBJECTION FROM THE ARRL. In its March 23 meeting, the League Executive Committee voted to file comments urging the Commission to implement the planned allocations as soon as possible, but to continue its "...opposition to footnotes placed against the 10 and 24 GHz bands and against the 220 MHz band which would reduce the status of the Amateur Service relative to other services in the band." The comment periods ended March 11 for original and March 26, 1985 for reply comments.

PROGRESS TOWARD ACHIEVEMENT OF THE APPROPRIATE ALLOCATION OF THE 10, 18, 24 AND 902 MHz BANDS TO THE AMATEUR RADIO SERVICE IN THE PR DOCKET 84-960 PROCEEDING HAS BEEN DELAYED AS A RESULT OF AN FCC ACTION GRANTING A REQUEST FOR AN EXTENSION OF THE REPLY COMMENT PERIOD (from January 16 to March 12, 1985). I understand that the work on this Docket is to be divided into two different parts, with the intent to move forward first on the part that is not controversial. However, it is likely to be several months before this first part is final.

ARRL 1985 REPEATER DIRECTORY STATISTICS ARE: 9351 listings, up 14.3% from 1984; 5931 on two meters, up from 5517 for 1984; 1758 on 220 MHz, up 32.1%; maximum per state is 927 repeaters in California, followed by Florida, New York and Texas. (ARRL Letter 03/28/85)

THE ENGINEER IN CHARGE (EIC) OF FCC'S ATLANTA, GA FIELD OFFICE ORDERED TWO SOUTHEASTERN AREA AMATEUR LICENSEES TO CEASE TWO METER BAND OPERATION BECAUSE OF INTERFERENCE TO CABLE TV RECEPTION. (WESTLINK REPORT 03/22/85). Arbitrary action and bypass by the EIC of all established procedures in the handling of interference complaints is alleged. It was reported that the order to the Gainsville, GA amateur has since been rescinded. The Greenville, SC amateur was put on quiet hours (1 hour of operation per day) after "...a new inspection of his station indicated that some direct, non-cable, transmitted-to-viewer RFI in the form of audio rectification still existed..." Earlier tests by an ARRL Technical Coordinator indicated that the cable was poorly shielded. (Westlink report, 03/22/85)

NO MENTION OF LICENSE FEES FOR OPERATOR LICENSES, AMATEURS, OR THE GENERAL MOBILE RADIO SERVICE IS IN BROADCASTING MAGAZINE'S REPORT OF FCC'S RECOMMENDATION TO CONGRESS THAT IT IMPOSE LICENSE FEES ON COMMERCIAL USERS OF RADIO. (ARRL, 03/12/85)

"THE FCC GETTYSBURG FIELD OFFICE HAS ADVISED LEAGUE STAFF THAT THE SUCCESSFUL COMPLETION CERTIFICATE ISSUED BY A VOLUNTEER EXAMINER TEAM IS NOT SUFFICIENT TO ENTITLE A PERSON TO TAKE THE NEXT HIGHER CLASS LICENSE EXAMINATION." "A letter from ARRL Legal Counsel Chris Implay, N4AKD, dated March 15, asks the FCC to clarify this situation." (ARRL Letter, 03/28/85) Both FCC Rule Sections 97.25(d) and 97.28(e) limit use of the Successful Completion Certificate to credit for the telegraphy examination elements 1(A), 1(B) or 1(C) only.

AT ITS MARCH 28 OPEN MEETING, FCC MADE PRELIMINARY FINDINGS THAT LIMITED

FEDERAL PREEMPTION OVER SATELLITE RECEIVING ANTENNAS IS WARRANTED AND THAT THERE SHOULD BE NO SIZE DISCRIMINATION FOR SUCH DISH ANTENNAS. FCC then adopted an appropriate Notice of Proposed Rule Making. "ARRL observers on the scene believe the Commission action is a good omen toward adoption of amateur's own preemption matter, PRB-1, later this Spring." (ARRL letter, 03/28/85)

THE NEW ADVANCED CLASS AMATEUR OPERATOR LICENSE EXAMINATION QUESTIONS, ELEMENT 4A, WERE PUBLISHED IN THE MARCH 1985 PR BULLETIN 1035C AND RELEASED BY FCC IN MID-MARCH.

THE VOLUNTEER MONITORING ACTIVITY UNDER THE ARRL AMATEUR AUXILIARY TO THE FCC'S FIELD OPERATIONS BUREAU SENT A TOTAL OF 1038 ADVISORY NOTICES TO AMATEURS DURING THE INITIAL FOUR MONTH PERIOD OF ITS EXISTENCE BEGINNING SEPTEMBER 1, 1984. The statistics reveal that "chirp discrepancies are the most numerous, at 25% of all reports sent, followed by out-of band operation at 19%."

THE FIELD OPERATIONS BUREAU (FOB)OF THE FCC HAD TAKEN POWER MEASUREMENTS AT 172 AMATEUR STATIONS DURING A PROGRAM PHASE ENDING FEBRUARY 25. Objectives were to discover whether amateurs can reduce power; what levels most amateurs use; what effects a 50% reduction in power has on a QSO in progress; and whether there is a general awareness and compliance with Section 97.62(a) of the Amateur Rules which mandates use of the minimum power necessary for the communications in progress. When asked, (by ARRL) "the FOB official was not sure exactly what the data will be used for" but "believed the results of the study would be available in early summer." (ARRL letter, 03/14/85)

THE VOLUNTEER EXAMINATION STATISTICS FOR FEBRUARY 1985 ARE: Sessions 168; Location 160; Passed 1873; Failed 1555; Elements administered 3428; Average pass rate 54.64%; Worst pass rate 25.00%; Best pass rate 80.00%.

EXCERPTS FROM THE HEARINGS BEFORE THE COMMUNICATIONS SUBCOMMITTEE OF THE COMMITTEE ON SCIENCE, TECHNOLOGY, AND SPACE OF THE UNITED STATES SENATE, (03/20/85) REGARDING CABLE TV LEAKAGE AND SENATE BILL 66 FOLLOW: (Senator Barry Goldwater, K7UGA, chairman of the Sub-committee is questioning Mark Fowler, Chairman of the Federal Communications Commission) "Am I correct in believing that no change is proposed to the second half of the present governing scheme; that is, regardless of whether any leakage is above or below the minimum standards, the cable operator is in all cases responsible for the eliminating any interference to communications caused by the leakage? "Mr. Fowler: Yes, Chairman Goldwater, that is correct. The cable operator may not interfere, and that is a black letter rule."..."Senator Goldwater: I hope you enforce that." "Mr. Fowler: We are. But we also need your Senate Bill 66, which would give us a little more enforcement power than we have now by providing criminal penalties. So we support Senate bill 66 very strongly."..."Mr. Fowler: ...As I mentioned, we really need something to permit us to get these people into Federal district court and to have the threat of criminal as well as civil penalties visited on people who willfully interfere. "Now we only have administrative sanctions. We can revoke their license, or we can fine them. But criminal penalty, Senator, I think is just exactly what we need."

ON MARCH 27, FCC RECEIVED A PETITION FROM GORDON WEST, WB6NOA, "TO ALLOW AMATEUR RADIO OPERATORS WHO POSSESS MARINE SINGLE SIDEBAND PART 83 TYPE-ACCEPTED EQUIPMENT TO OPERATE THIS SAME EQUIPMENT ON AMATEUR RADIO FREQUENCIES AS AUTHORIZED BY CLASS OF AMATEUR RADIO LICENSE HELD." "This would increase the chances of a licensed amateur radio operator to signal a Mayday on any maritime mobile or amateur radio frequency with the same transceiver. This would also discourage th widespread use of non-type-accepted amateur radio equipment on maritime single sideband frequencies."

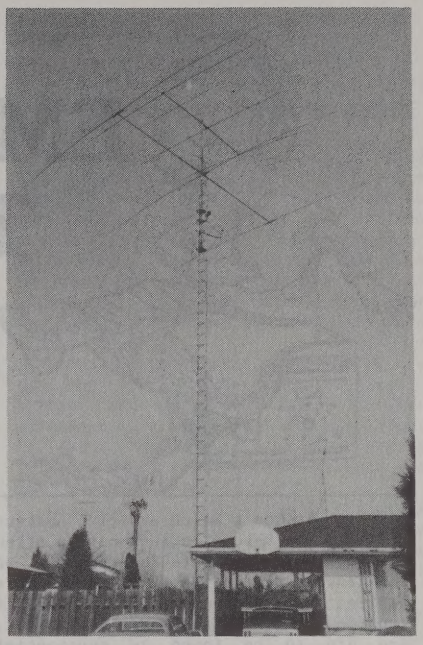
ON MARCH 29, 1985, FCC RELEASED AN ORDER (SUBJECT TO APPEAL) REVOKING AND SUSPENDING THE AMATEUR STATION AND OPERATOR LICENSES OF JAMES W. SMITH W6VCE, OF EL COJON, CA, FOR CAUSING WILLFULL AND MALICIOUS INTERFERENCE TO RADIO COMMUNICATIONS, IN VIOLATION OF SECTION 97.125 OF THE AMATEUR RADIO SERVICE RULES. The Order stated that he "...at the same time, violated Sections 97.113, 97.115, 97.84(a) and 97.123." These Rule Sections are titled: 97.84 Station identification; 97.113 Broadcasting prohibited; 97.115 Music prohibited; 97.123 unidentified communications. Apparently the violations have taken place starting at least in February 1984 in the course of a feud between Smith and a group of repeater users carried on in the amateur two meter band. The Commission's document uses 23 pages to describe the history of, and procedures involved in this case!

THE FCC HAS DISMISSED A PETITION TO INCORPORATE THE ARRL TWO-METER BAND PLAN IN THE AMATEUR RADIO SERVICE RULES. It indicated belief that voluntary plans are preferable to rigid regulations and that operation in nonconformity was not harmful enough to require Commission action.

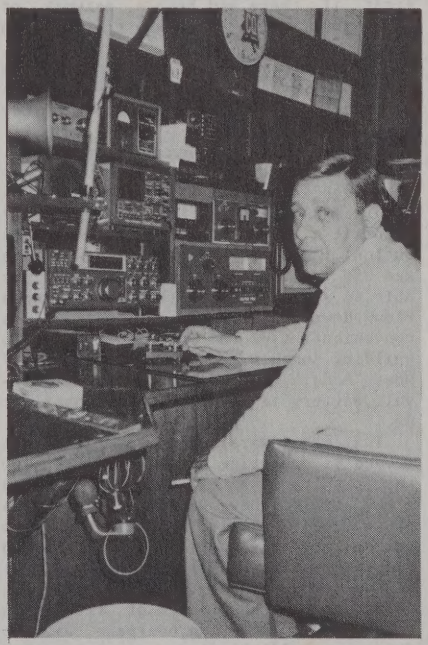
THE FCC HAS SHOWN INTEREST IN AN ARRL FILTER PROJECT AND WOULD LIKE IT TO PUBLISH A LIST SHOWING THE RELATIVE EFFECTIVENESS OF VARIOUS FILTERS IN THE CONSUMER MARKETPLACE. "In turn, the Commission could furnish copies of our list to consumers having TVI, with some assurance the complainant would buy one which really works. Neither price nor manufacturer's name has much to do with effectiveness. For instance, one widespread chain of stores sells three TVI filters; one works, the other two do not! One $2.50 filter ...works much better than some costing eight or ten times as much." (ARRL, 02/20/85)

FCC AMATEUR OPERATOR AND STATION LICENSE TOTALS AS OF FEBRUARY 28 WERE: EXTRA CLASS 36,303; ADVANCED 97,518; GENERAL 116,874; TECHNICIAN 80,658; NOVICE 79,497; TOTAL OPERATORS, 410,850; CLUB STATIONS 2302; MILITARY RECREATION 175; SECONDARY STATIONS 0; RACES 399; TOTAL STATIONS 413,726.

(W4GF)



John Summach, VE3MFA is one of those contesters who tries to maximize his contest results from a city size lot. John likes low bands, namely 160 m and his last operation in the CQ WPX SSB contest netted him a score that beat the world record. John is using a Kenwood TS-930S with Heil audio gadgets, and an Alpha amplifier. A seventy foot tower supports the 3 el. 40 m beam and a tribander. Slopers are used for 80 and 160 m bands.



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*                                       *
*  COMING UP:                           *
*        WARC BANDS AND CONTESTING      *
*        CW FILTERS FOR TS930S          *
*        REVIEW TS-940S                 *
*        VE3BMV RAZOR BEAMS             *
*        DXPEDITIONS                    *
*              and much more            *
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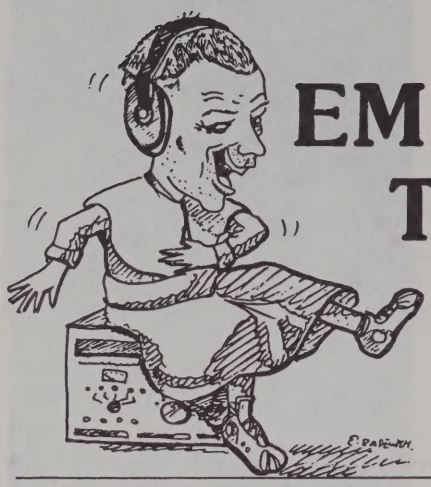

EMERGENCY TRAFFIC

Chuck Clark, K4ZN

Dave Wilson's March article "Amateur Radio to the Rescue" points out an often overlooked bonus amateurs bring to an emergency team. Yes, amateurs are skilled communicators, have adequate equipment and an efficient organization, and are to be found in substantial numbers nearly everywhere. But what is overlooked is the fact that they are also great improvisers. Many of us, at least in the beginning, are not financially able to purchase the kilobuck rigs that are advertised in the ham magazines and have to make do with what we can scrounge on the surplus and used equipment markets; or construct ourselves. Such experience often comes in handy later when communications are less than ideal in an emergency situation.

In Dave's story, it would have been great if there had been a network of direction finders to locate the crashed plane. But there wasn't. Lacking that, the amateurs were able to locate the survivors by the serial number on the electric meter of the trailer where they took shelter.

That's just one example of many. Stories abound of how amateurs have succeeded in establishing communication by improvising. Microphone dead? Transmit CW using the push-to-talk button. A boater did this a few years ago off the U.S. Pacific Coast, and was able to summon help in this way. Antenna blown down? Heave a piece of wire into a convenient tree or support it from a building somehow. Commercial power out? Most modern rigs can be run from a 12-volt battery if you know how to hook it up.

That's hardware ingenuity. More often needed is operating know-how, ingenuity that results in an effective solution to a new problem. Dave Wilson's story gives us a good example, locating a lost person by the serial number on an electric meter. Another is the youthful genius who discovered the elegant solution to the problem of freeing a truck stuck under an overpass without doing any additional damage to either the truck or the structure: he let the air out of the tires. In emergencies it is manifested by knowing where to find help, how to get it, how to contact someone who can help. Here are a few suggestions.

Of course the first to call are those whose work is to help; police, fire department, coast guard and the like. What is an emergency for the rest of us is routine business for them. It wouldn't be a bad idea for amateurs to have a list of such people handy at the operating position. It would be still better to include in such a list others who can help. Here are a few: doctors' exchange, emergency medical service, FAA Flight Service Station, service departments of public utilities, civil defense, Red Cross and other volunteer aid groups, Weather Service (and maybe see if your help is needed as a volunteer observer). The FCC, Coast Guard and FAA all operate direction-finding facilities that can help locate a transmitter in an emergency. Normally the FCC does not use its facilities for this purpose, but will do so if asked by a recognized authority. In wilderness areas, the list should include those who are able to help persons in distress in these areas, such as Forest Service, Park Service, forestry and mining industries. It always helps if you know someone personally in a position to help, but don't hesitate to call even if you don't; the worst they can do is to say no.

Another area where amateur ingenuity can pay off is that of finding someone in an emergency. Say you want to get word to a neighbor's relative in a distant part of the country that the neighbor is recovering after a nearly fatal accident, and your telephone is not working. Here are some possibilities: National Traffic System, not recommended if it's really urgent as it's likely to take a day or two to get the message to its destination. Twenty meter nets, quite good if you find someone from the destination areas in the net, but it's a matter of chance, particularly for smaller towns. The same can be said about the various CARS nets between 7250 and 7260 kHz. The destination section net frequency, where of ten there are round tables going on at any and all hours with stations checking in and out at will, chewing the rag about everything and nothing. Even if no station is on the air from the destination area, one of the net members often will bring someone up by a "smoke signal," calling the desired station's phone, letting it ring once, then hanging up. The single ring tells the operator to get on the air. This procedure is another fruit of amateur ingenuity. In former times one called CQ Texas. Today an amateur hearing that, would probably think you were merely looking for a Texas contact to fulfill a requirement for some certificate or other. Which one to use? That depends on many things: propagation conditions, the distance to be covered, time of day, your equipment, and the urgency of the message. Experience here pays off. Those who have been active for a number of years will often instinctively pick the best solution. Traffic handling experience, yes, but DXing, contesting, and other Amateur Radio activities can also provide valuable experience that can make the difference between success and failure when the chips are down.

NETS: CURSE OR BLESSING?

"Please QSY. This is a net frequency." Fighting words! Often the trouble is that conditions change and stations previously inaudible to one another begin to cause mutual interference, and each thinks the other group just came on the air and fired up on "my frequency."

Add to that the opposing mental outlooks of the two groups. Net members rightly say that they have to work close enough to the published frequency for members to find the net. How close is that? It varies, but I've been told I'm high in frequency when I'm net control and have moved only a hundred hertz or so off the designated frequency. Amateurs not working in nets also rightly say that they have as much right to use a frequency as does a net. The only station that has a legally recognized priority right to a frequency is one that has emergency traffic, in the strict sense, traffic which would endanger human life if delayed.

How to solve the problem? Usually it can be solved cooperatively if both groups will cooperate. Note that "cooperate" means to work together. You can't have cooperation without the two working together. Complaints that the other party "won't cooperate" often means "won't submit." The complaint reminds one of Russian complaints that Americans don't want to negotiate arms reduction: the Russians make a proposal and the Americans don't accept it, instead make one of their own.

When interference problems of this kind arise, they can usually be solved quickly if everybody quits talking and begins to listen. You can usually find a mutually satisfactory way for each to move a bit and make room for the other, then both groups get the word to all concerned and move.

The alternative is to complain to the FCC of DOT about harmful interference. That's not a good alternative for two reasons: first, it doesn't help Amateur Radio to have a lot of complaints about poor operating. That's not the way to make friends with the people who allocate our frequencies. Second, the regulatory agencies must work with limited budgets and limited resources. If monitoring and regulating Amateur Radio proves to be too much of a drain, the regulators will begin to think that slapping additional restrictions on amateurs or closing the service entirely might be an effective solution. (K4ZN)

If you know of any traffic/emergency related stories please drop a line to:
Chuck Clark, K4ZN
Route 3, Box 800
Moncks Corners, SC 29461

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The Classified Ads rate is 15 cents per word. Remittance in full (check or money order) must accompany copy. Each word, abbreviation, model number, and group of numbers count as one word. No charge for Postal or ZIP code. Ads should be typed or clearly printed on a separate piece of paper. The closing date is the 25th of the month preceding publication. A last name or call must appear in each ad with an address or phone number.

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N.KENTUCKY HAMORAMA to be held June 15 and 16 at the Best Western Vegas Convention Center, Erlanger, KY (I-75 to exit 184B), completely indoors, free parking, Vendors, flea market. Contact John Thernes, WM4T, days: (513) 397-7425, evenings: (606) 331-0331

ATLANTA HAMFESTIVAL and Georgia State ARRL Convention July 6 and 7, 1985 at Georgia World Congress Center. Box 77171, Atlanta, GA 30357

VE7 CONVENTION The 33rd Annual Pacific North West DX Convention will take place at the Richmond Inn, Richmond, B.C. July 27 and 28, 1985 and is sponsored by BC DX Club. For info contact Andy Pozini, VE7AHA, 4551 Arthur Dr., Delta, B.C. V4K 2X4

REGINA HAMFEST 85 in Saskatchewan will be held at the Wascana Institute of Applied Arts and Sciences in Regina on August 2,3 and 4, 1985. Commercial exhibits and flea market tables at no charge. Contact Lorne Morgan, VE5AGM or George Kosmenko, VE5GF (305) 543-7923

HUNTSVILE, HAMFEST held on the third weekend in August inside air-conditioned Von Braun Civic Center, Huntsville, Alabama. Josh Kelly, N4AVB (205) 837-0569

CONTEST FORMS FOR CQ WW, CQ WPX AND CAN-AM CONTESTS. Each set includes summary sheet, multiplier check sheet, dupe sheets for Europe, VE/W and rest of the world, log sheets with 100 QSOs per page as described in RADIOSPORTING Dec.84. Send business size SAE and $1 per set to: IRSA, Box 65, Don Mills, ON M3C 2R6

ICOM FILTERS FL-30 $30, FL-44A $90, RC-10 remote keypad $20, SM-6 mike $25, MFJ-722 CW and SSB filter $39. All mint condition. Walt Amos, K8CV, 4612 Woodland, Royal Oak, MI 48073, (313) 549-1846, bus. (313) 588-9933

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THE ORIGIN OF "73"

LOUISE RAMSEY MOREAU, W3WRE

The original expression "73" goes right back to the beginning of the landline telegraph days. It is found in some of the earliest editions of the numerical codes, each with a different definition, but each with the same idea in mind - it indicated that the end, or signature, was coming up. But there are no data to prove that any of these were used.

The first authentic use of 73 is in the publication The National Telegraphic Review and Operators' Guide, first published in April 1857. At that time, 73 meant "My love to you!" Succeeding issues of this publication continued to use this definition of the term.

Curiously enough, some of the other numerals used then had the same definition as they have now, but within a short time, the use of 73 began to change.

In the National Telegraph Convention the numeral was changed from the Valentine-type sentiment to a vague sign of fraternalism. Here, 73 was a greeting, a friendly "word" between operators and it was so used on all wires.

In 1859, the Western Union Company set up the standard "92 Code." A list of numerals from one to 92 was compiled to indicate a series of prepared phrases for use by the operators on the wires. Here, in the 92 Code 73 changes from a fraternal sign to a very flowery "accept my compliments," which was in keeping with the florid language of that era.

Over the years from 1859 to 1900, the many manuals of telegraphy show variations of this meaning. Dodge's The Telegraph Instructor shows it merely as "compliments." The Twentieth Century Manual of Railway and Commercial Telegraphy defines it two ways, one listing as "my compliments to you;" but in the glossary of abbreviations it is merely "compliments." Theodore A. Edison's Telegraphy Self-Taught shows a return to "accept my compliments." By 1908, however, a later edition of the Dodge Manual gives us today's definition of "best regards" with a backward look at the colder meaning in another part of the work where it also lists it as "compliments."

"Best regards" has remained ever since as the "put-it-down-in-black-and-white" meaning of 73 but it has acquired overtones of much warmer meaning. Today, amateurs use it more in the manner that James Reid had intended that it be used - a "friendly word between operators."

(Holmsburg ARC Newsleter)

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